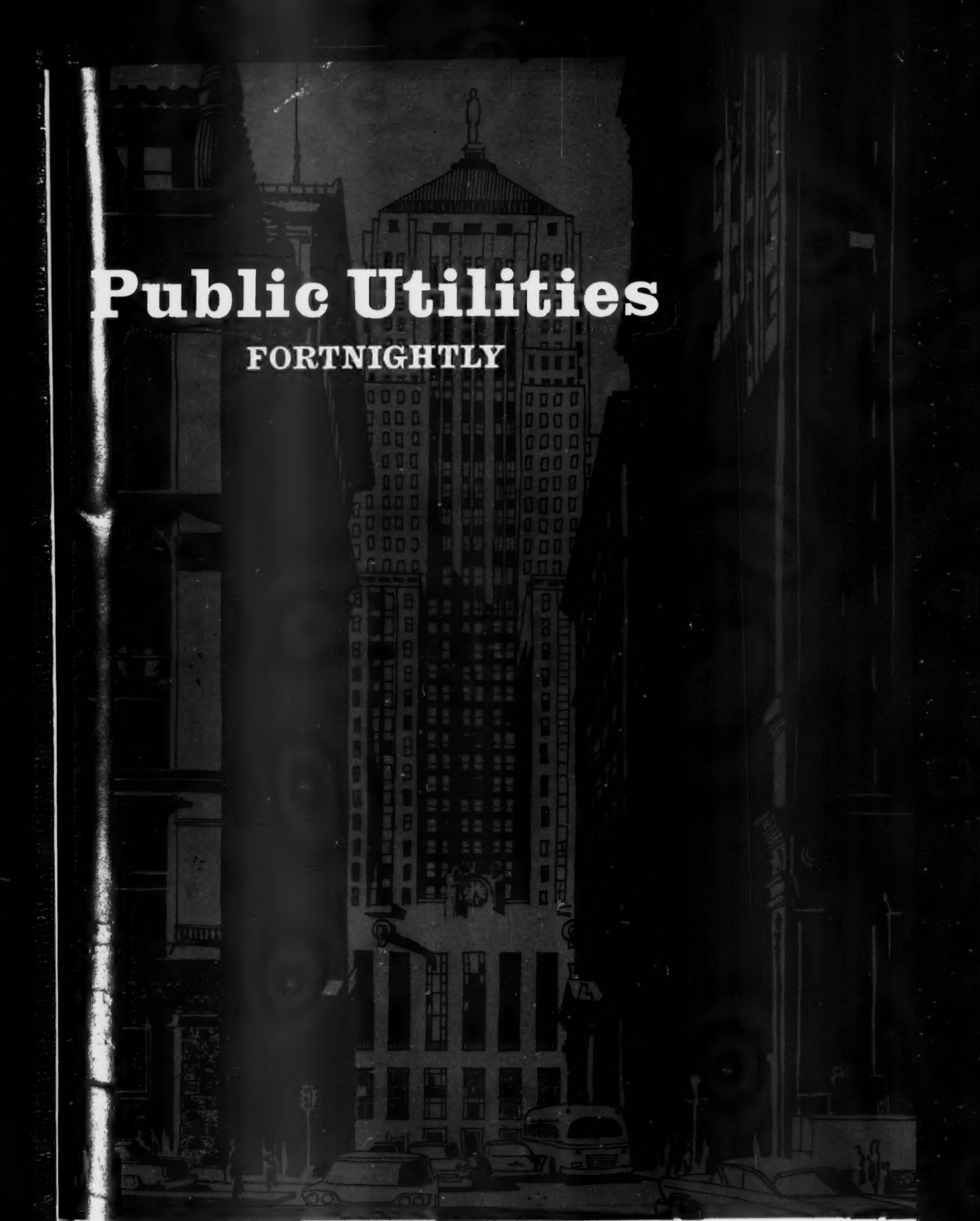

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78

ew horizons for growth and service

OCTOBER 8 1959

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Subscriptions: Address correspondence to PUBLIC UTILITIES FORTNIGHTLY, circulation department, 332 Pennsylvania Building, Washington 4, D. C. Allow one month for change of address.

Single copies $1.00. Annual subscription price (26 issues a year): United States and possessions, $15.00; Pan American countries, $15.00; Canada, $16.00; all other countries, $17.50.

Entered as second-class matter April 29, 1915, under the Act of March 3, 1879, at the Post Office at Baltimore, Md., December 31, 1936. Copyrighted, 1959, by Public Utilities Reports, Inc. Printed in U. S. A.

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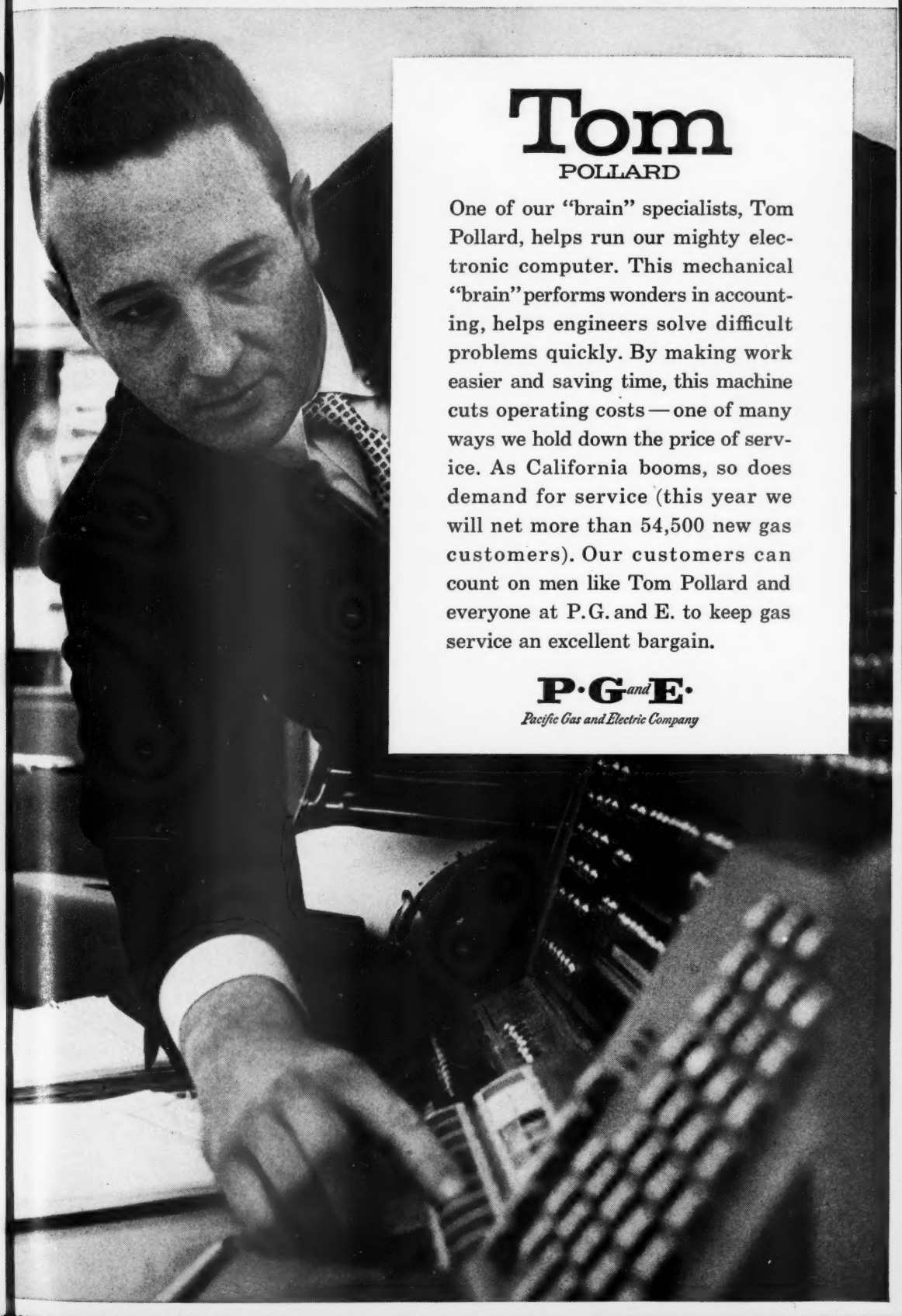

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Pages with the Editors

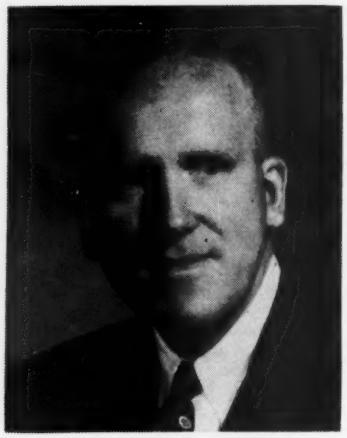
ONCE more we are privileged to publish in this issue, especially devoted to matters of interest to the natural gas utility industry, an exclusive message from the president of the American Gas Association, J. THEODORE WOLFE, who is also president of Baltimore Gas & Electric Company. In the opening article in this issue MR. WOLFE tells us about the program of the American Gas Association in carrying out the theme of its 41st convention at Chicago October 5th to 7th, which is "New Horizons for Growth and Service."

A NATIVE of Pennsylvania and a graduate of Penn State and Harvard School of Business Administration, "TED" WOLFE joined the Baltimore Gas & Electric Company in 1932 and rose to a position of vice president by 1946. He became executive vice president in 1950, and assumed his present position as head of the company in 1957.

* * * *

THE gas industry is still hearing repercussions from the recent decision of the Federal Power Commission in the so-called "El Paso case." In his article beginning on page 582, RICHARD A. ROSAN, vice president and general counsel of Co-

WILLIAM R. CONNOLE



J. THEODORE WOLFE

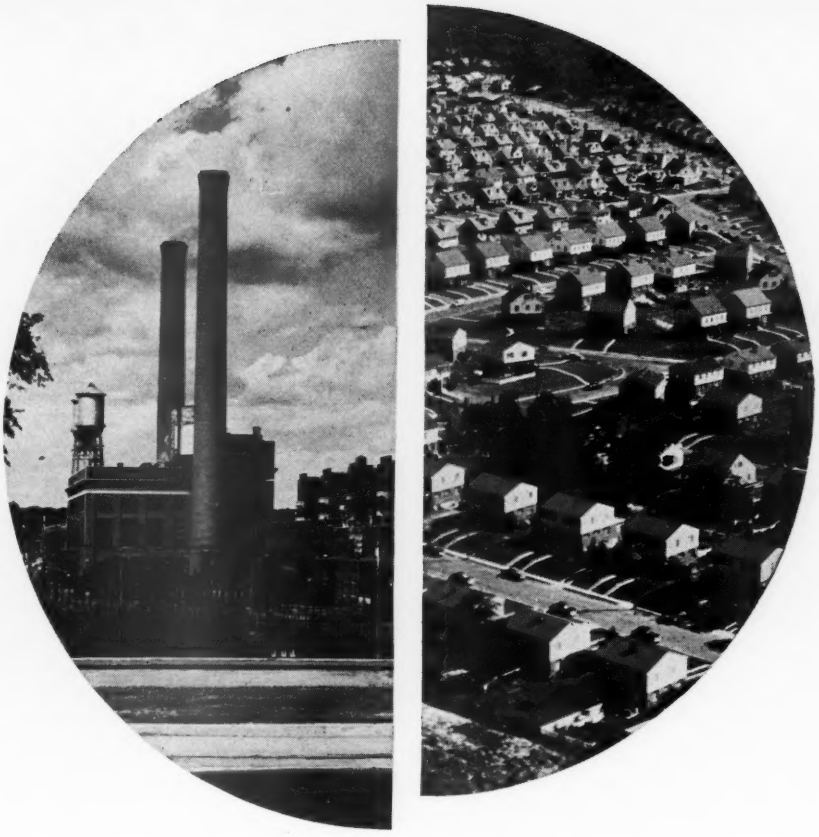
lumbia Gas Service Corporation, gives us the benefit of his informed analysis of the impact of this opinion on natural gas regulation generally. MR. ROSAN is a graduate of Cornell (AB, '33) and Yale (LLB, '36) universities. Prior to joining the Columbia Gas System in 1951, he practiced law in New York with the firm of Cravath, Swaine & Moore.

* * * *

F. M. BANKS, whose article on gas pricing begins on page 601, is a former president of the American Gas Association (1954-55), as well as president and general manager of Southern California Gas Company. He attended Riverside Junior College, in California, Colorado School of Mines, and Massachusetts Institute of Technology. He joined the civil engineering department of Southern Gas in 1922, and rose through successive promotions to his present post in 1950.

* * * *

WILLIAM R. CONNOLE gives us a rather interesting comparison of the natural gas pipeline industry's dilemma of rising rates and possible competition with other fuels in his article beginning on page 594. MR. CONNOLE is a native of Connecticut and a graduate of George-



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town University (BA, LLB). He first got into regulatory work as an assistant to Interstate Commerce Commissioner Walter M. W. Splawn, and later as an ICC attorney-examiner. From 1950 to 1955 he was counsel to the Connecticut Public Utilities Commission and was appointed by President Eisenhower to the FPC in 1955.

* * * *

HAROLD MASSEY, whose article on the gas industry's contribution to the national economy appears on page 606, has been managing director of the Gas Appliance Manufacturers Association since October, 1955. He joined the association in 1946 as assistant managing director. From 1939 to 1946 MR. MASSEY was gas equipment sales manager for the American Radiator and Standard Sanitary Corporation in Pittsburgh, and prior to that (1931 to 1939) he had been general sales manager of American-Standard's American Gas Products Corporation Division. He had previously been chief engineer of the Standard Gas Equipment Corporation (1923-31). MR. MASSEY holds an ME degree from Stevens Institute of Technology and makes his home in West Englewood, New Jersey.

* * * *

ROBERT B. ECKLES, whose article on the importance of professional economic analysis and the work of the FPC begins on page 614, is a professor of history at Purdue University, who has specialized in

ROBERT B. ECKLES

HAROLD MASSEY

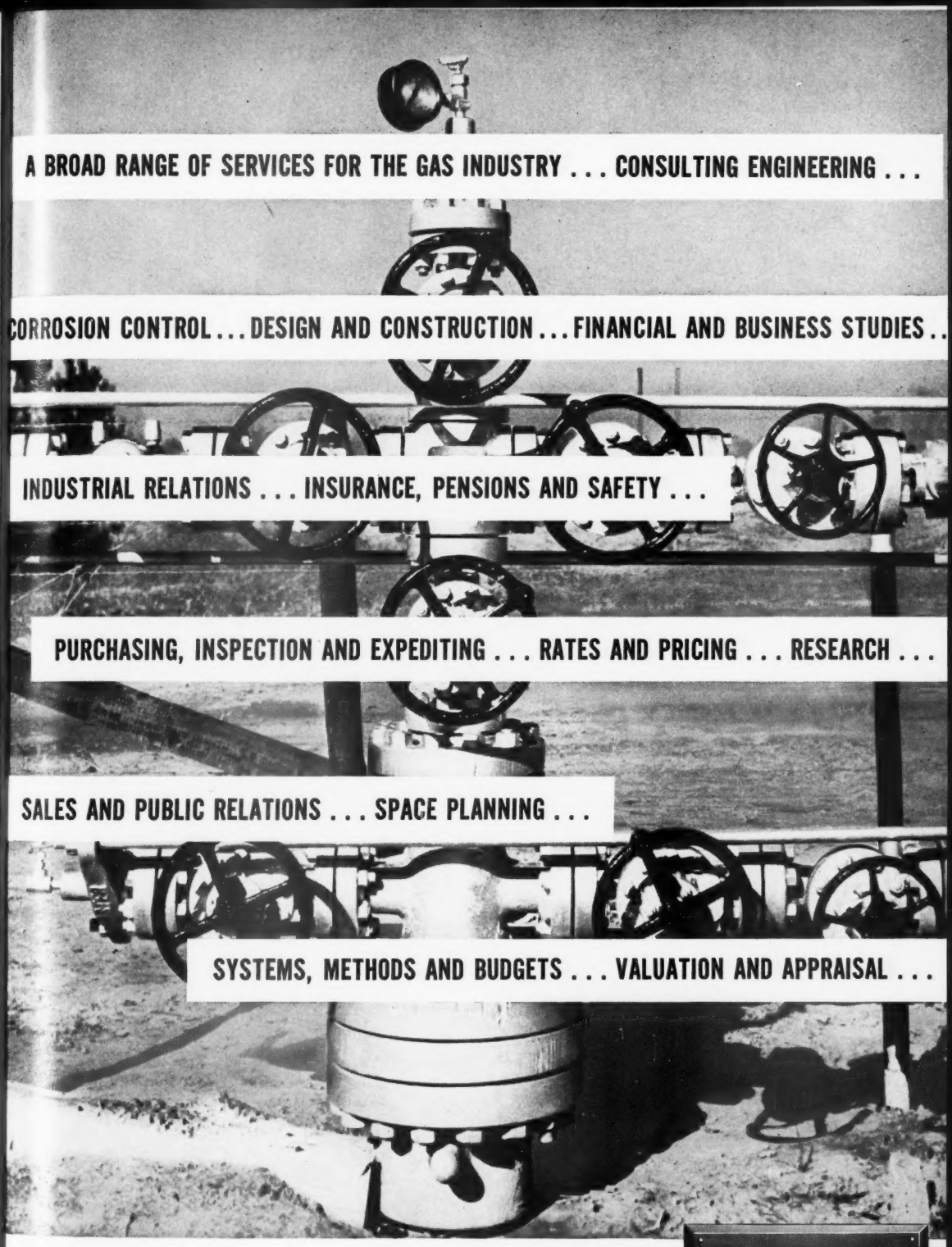
modern European and English history. He has also been interested in European and American economy and has recently completed the first case study of a natural gas transmission line for the Indiana Historical Society. It is a historical account of the Panhandle Eastern Pipe Line Company.

* * * *

ALTHOUGH this issue is almost entirely devoted to natural gas matters for reasons above stated, we must, with editorial red faces, confess to a typographical error in connection with the frontispiece published in our August 27th issue. This was a handsome view of the Ohio Valley Electric Corporation's Clifty Creek dam at Madison, Indiana. But the gremlins in the composing room, aided and abetted by a hot spell in the editorial office, managed to transpose this structure many miles upstream to the region of Lake Mendota at Madison, Wisconsin. We promised our friends in the American Power & Light Company system that we would restore their plant to them at its proper site in Indiana, in good working order. Wisconsin will simply have to struggle along without it; but then they have got some fine plants there, too.

THE next number of this magazine will be out October 22nd.

The Editors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USITA AND THE INDEPENDENTS' FUTURE

The first vice president and probable president during the coming year of the United States Independent Telephone Association is Foster B. McHenry, who is also president of Capital City Telephone Company of Jefferson City, Missouri. He has prepared an article explaining the vital function of the USITA in promoting and maintaining the welfare of the smaller independent telephone companies throughout the United States.

NEW PRODUCT PROGRAM HELPING BELL SYSTEM PROSPER

William R. Reiss, administrator, new product planning, American Telephone and Telegraph Company, gives us an account of the work and planning going on throughout the Bell system to make the telephone of even greater service to the American public and to acquaint the average subscriber with the availability of a variety of telephone appliances and special services not heretofore on the public service market.

THE TELEPHONE HOUSEHOLD: A PROFILE

What kind of a fellow is the average telephone subscriber? How big is his family? What kind of house does he live in, and how much does he make? Not long ago O. E. McIntyre Incorporated conducted a survey on the nation's telephone households to find out such characteristics of average subscribers as size, income, location, etc. Edward A. MacNeal, research director, tells us about this fascinating profile of the telephone household, based on census figures and other authoritative sources.

VOLUNTEER MEDICAL ENGINEERS . . . TELEPHONE PEOPLE LEND HELPING HANDS

The bread-and-butter job of LeRoy J. Ryan is electrical and communication engineering in the engineering department of Illinois Bell Telephone Company in Chicago. His avocation is being president of SAVE, which stands for Service Activities of Volunteer Engineers. This article tells how a group of Illinois Bell men have volunteered their know-how to help medical research in fighting cancer, heart disease, and infant deaths.

INTERNATIONAL REGULATION OF COMMUNICATIONS IN THE SPACE AGE

In mid-August the International Telecommunications Union gathered for a most important conference in the city of Geneva, Switzerland. One of the top items on the agenda was the question of regulating communications in the light of the rush of developments in the conquest of space. Already messages are being bounced off the moon, and man-launched satellites and missiles are being tracked to the moon and into outer space. Francis X. Welch, editor of PUBLIC UTILITIES FORTNIGHTLY, tells about the Geneva meeting.

TELEPHONE BRIEFING ON THE MOTEL

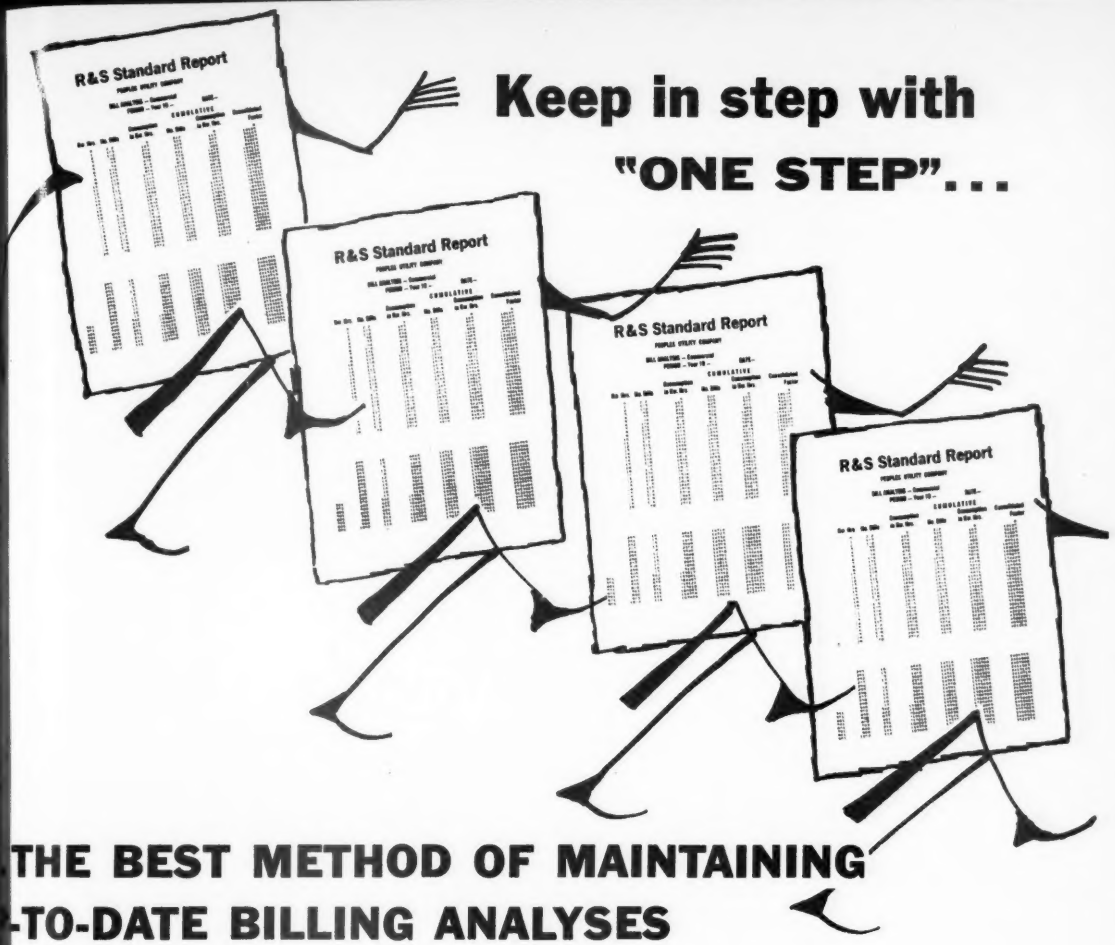
The motel is a comparatively new and particularly American development in the long tradition of inn keeping. A cross between the modern hotel and the economical hostel of European hikers and cyclists, the motel is fast becoming a major industry with peculiar demands of its own for public service, especially telephone service. John Mappelbeck, free-lance writer, has written about this particular angle of very recent origin.

MOTHER BELL NEEDS SOME NEW FRIENDS

James H. Collins, Washington writer, has made another one of his entertaining one-man surveys of public relations practices and problems in the telephone business during this period of frequent rate cases and rising customer resistance to rate increases.

★

Also . . . ***Special financial news, digests, and interpretations of court and commission decisions, general news happenings, reviews, Washington gossip, and other features of interest to public utility regulators, companies, executives, financial experts, employees, investors, and others.***



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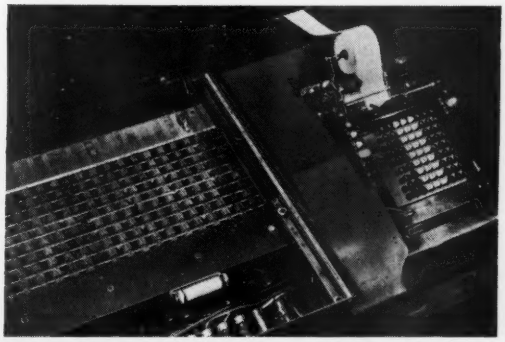

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President, AFL-CIO.

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WILLIAM HENRY CHAMBERLIN
Columnist.

"If the men who signed the Declaration of Independence could revisit the American Republic tomorrow they would be amazed by many things. They would find causes for pride and satisfaction in the development of their handiwork; they would also find causes for . . . regret. . . . Committed to the ideal of a limited government of divided powers, they would not, one suspects, be admirers of a proliferating centralized bureaucracy. And they would see as symptoms of moral softness the modern tendency to use public money as a bribe to voters and the widespread tendency to substitute state help for self-help."

L. F. MCCOLLUM
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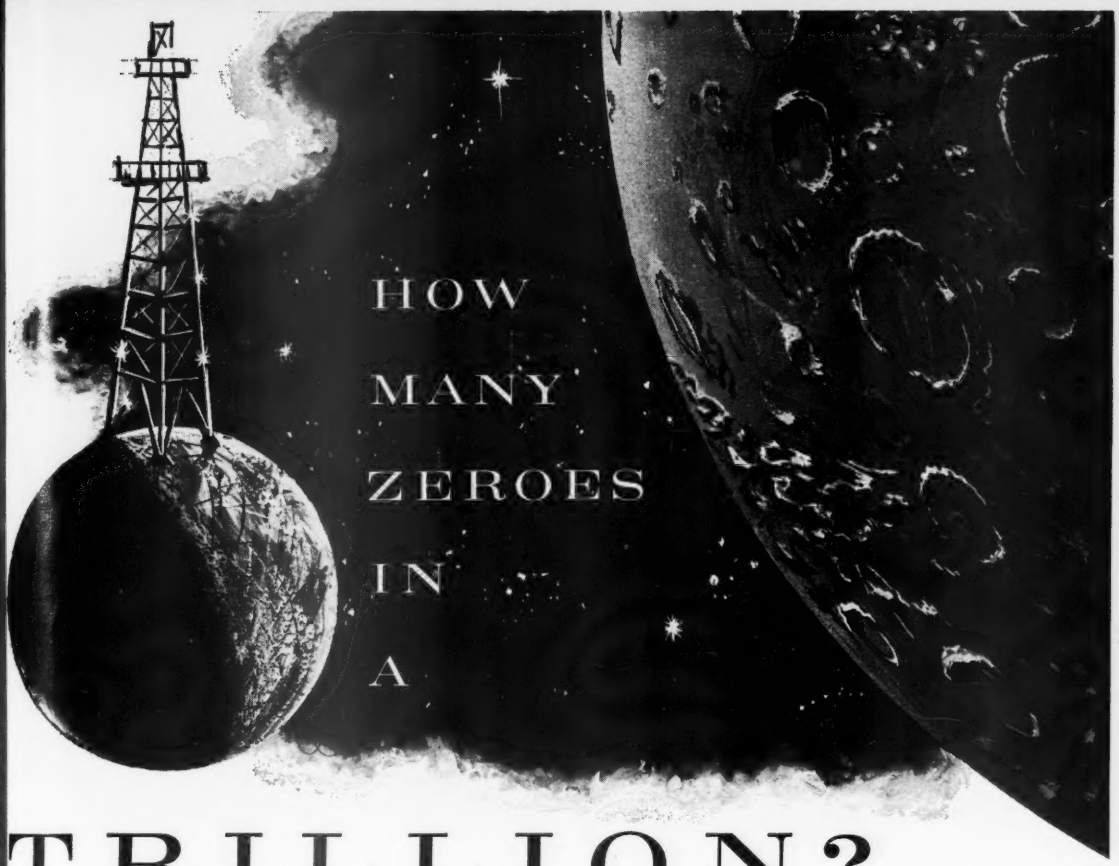

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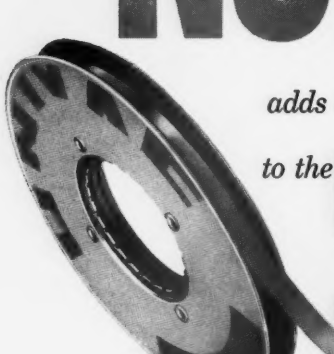

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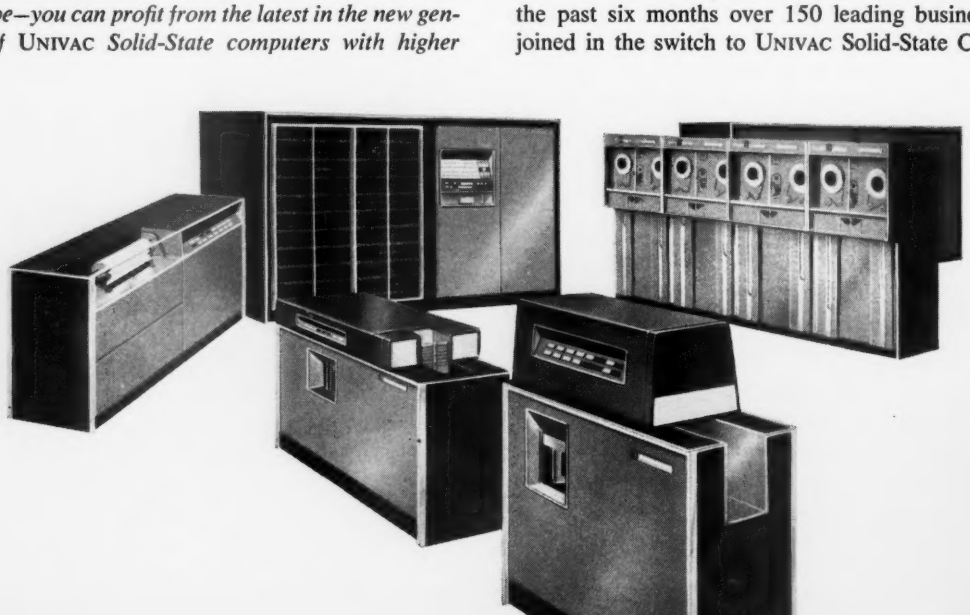

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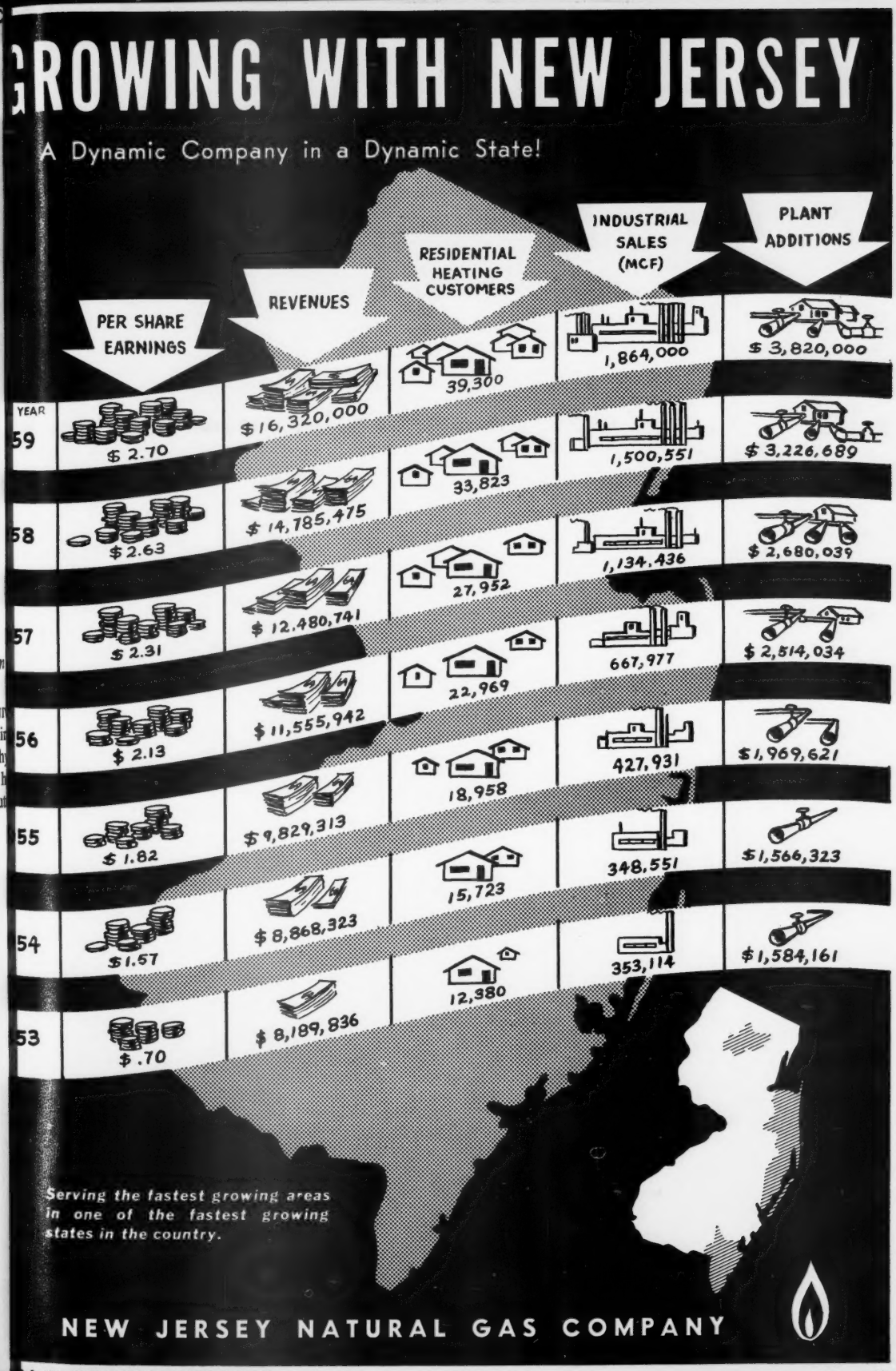

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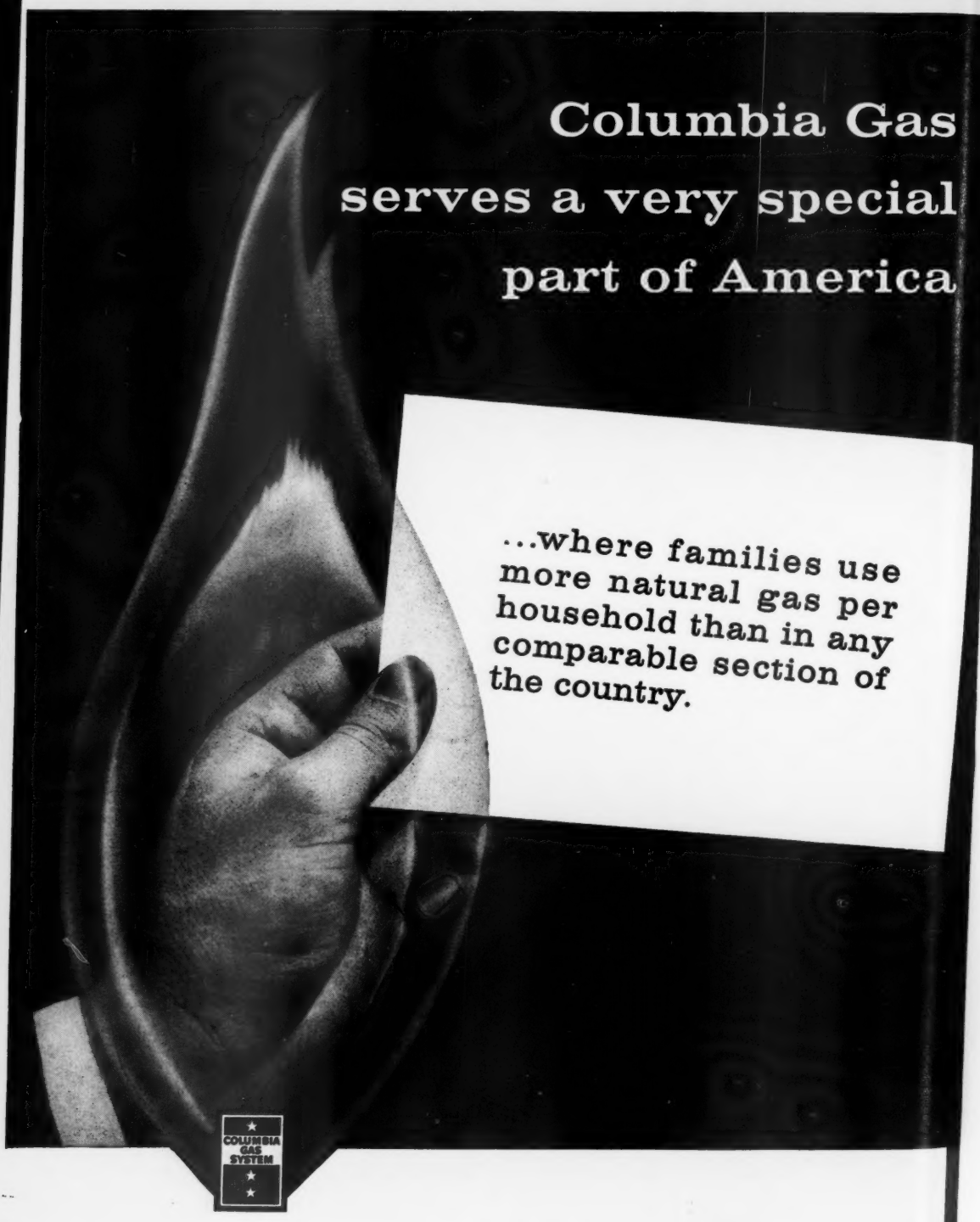

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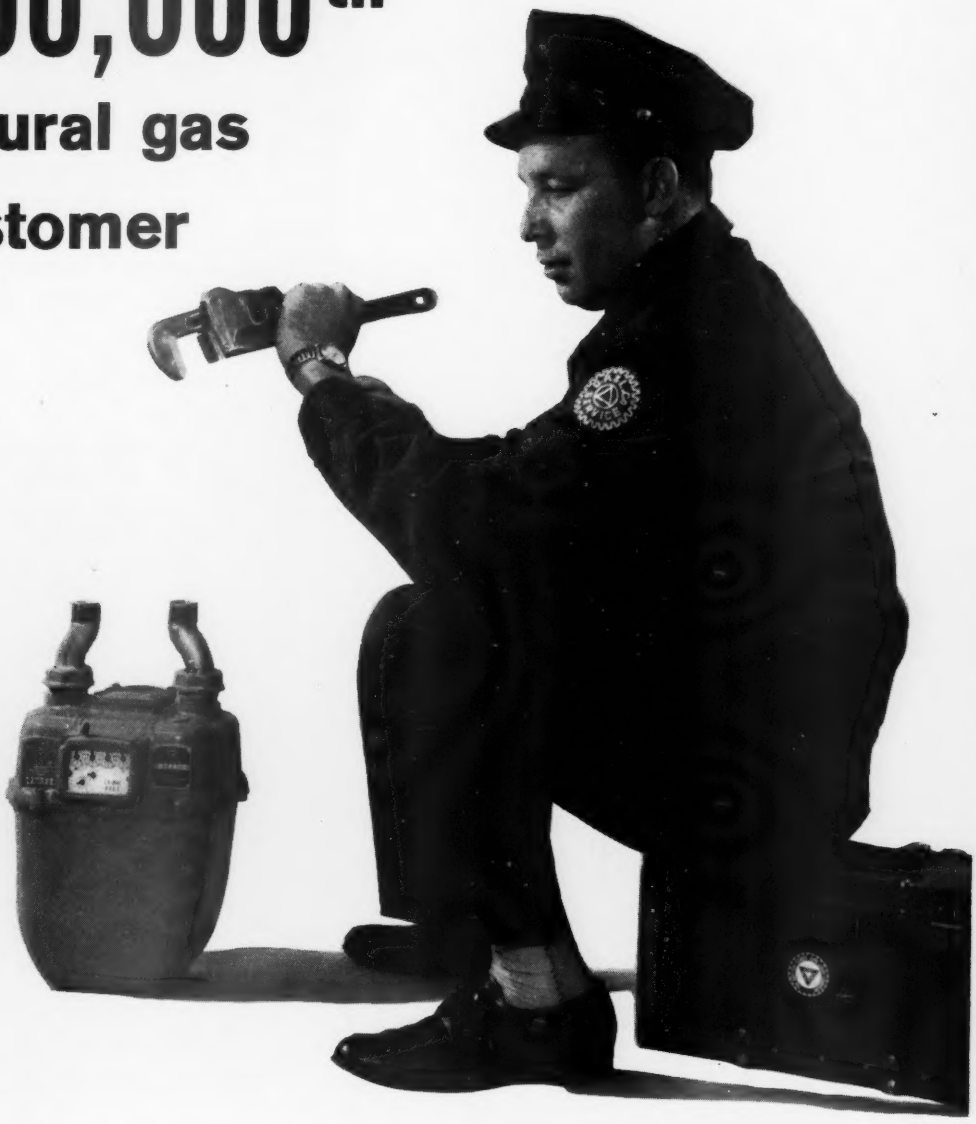

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OCTOBER

Thursday—8 *California Natural Gasoline Association begins fall meeting, Pasadena, Cal.*	**Friday—9** *Indiana Electric Association ends three-day annual convention, French Lick, Ind.*	**Saturday—10** *Independent Natural Gas Association of America will hold annual meeting, Phoenix, Ariz. Oct. 26, 27.* ***Advance notice.***	**Sunday—11** *United States Independent Telephone Association begins national convention, Chicago, Ill.*
Monday—12 *National Association of Railroad and Utilities Commissioners begins convention, Philadelphia, Pa.*	**Tuesday—13** *Annual Gas Measurement Institute begins, Liberal, Kan.*	**Wednesday—14** *Wisconsin Utilities Association begins operating and sales convention, Milwaukee, Wis.*	**Thursday—15** *Southeastern Electric Exchange, Engineering and Operation Section, begins fall meeting, Atlanta, Ga.*
Friday—16 *American Society for Testing Materials ends six-day meeting, San Francisco, Cal.*	**Saturday—17** *American Home Laundry Conference will be held, New York, N. Y. Oct. 29, 30.* ***Advance notice.***	**Sunday—18** *American Trucking Associations, Inc., begins annual convention, Los Angeles, Cal.*	**Monday—19** *National Safety Congress begins, Chicago, Ill.*
Tuesday—20 *American Society of Association Executives begins annual meeting, Boca Raton, Fla.*	**Wednesday—21** *New England Gas Association, Operating and Accounting Divisions, begins meeting, Hartford, Conn.*	**Thursday—22** *Edison Electric Institute, Statistical Committee, begins meeting, Hot Springs, Va.*	**Friday—23** *Natural Gasoline Association of America begins southern regional meeting, Tyler, Tex.*

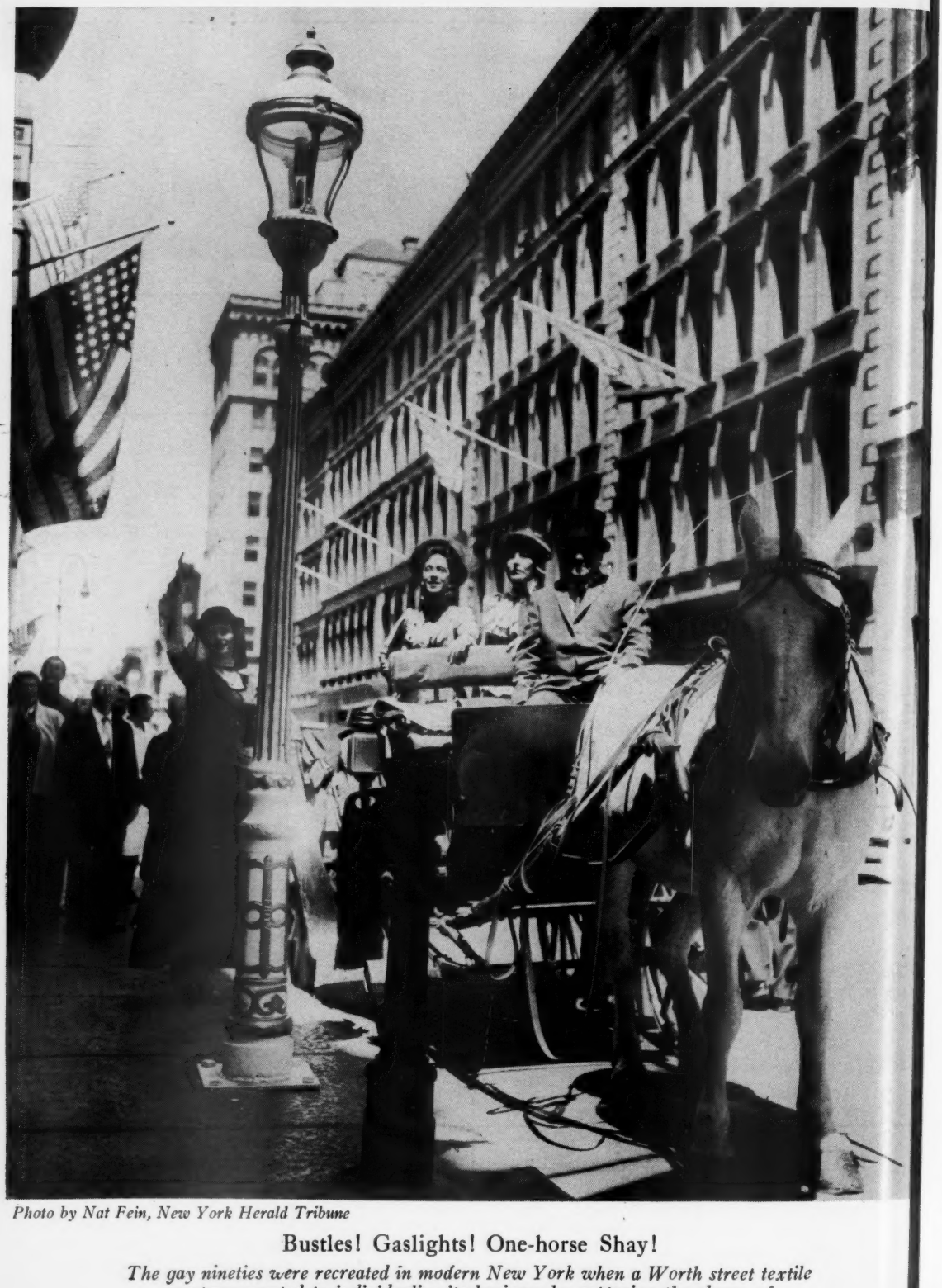


Photo by Nat Fein, New York Herald Tribune

Bustles! Gaslights! One-horse Shay!

The gay nineties were recreated in modern New York when a Worth street textile company wanted to individualize its business by capturing the charm of this turn-of-the-century era. Gas street lamps of authentic vintage were permanently installed in front of the establishment.

Public Utilities
FORTNIGHTLY

VOLUME 64 OCTOBER 8, 1959 NUMBER 8

The Gas Industry *Looks to New Horizons*

By J. THEODORE WOLFE*
President, American Gas Association

The gas industry under AGA leadership has begun to vastly expand its research program. Out of it will emerge sales stratagems in the form of better appliances, more efficient production, and resultful promotion techniques that will give added impetus to the swelling tide of increased business the future holds for aggressive gas utilities. The "past is merely prologue" of what is yet to be.

It was 1816. We were a young nation of only 19 states and only a dozen cities with more than 8,000 inhabitants.

James Madison, our fourth President, was near the end of his second term of office and John Marshall was halfway through his 34-year tenure as Chief Justice.

The United States adopted its first protective tariff and the Supreme Court established its right to reverse the decision of a state court.

And that, too, was the memorable year in which the gas industry had its humble beginnings in America.

In the century and a half since its unheralded debut in Baltimore, the gas industry has experienced acute growing pains; sometimes its progress became

*Also president, Baltimore Gas & Electric Company. For additional personal note, see "Pages with the Editors."

laboriously slow; sometimes it appeared to be at a dead standstill; and, on many occasions, some gloomy prophets pontificated that it was certainly headed for extinction.

Today, echoing Mark Twain's protest that "reports of my death have been greatly exaggerated," the gas industry is still thriving, growing faster, larger, and stronger than ever before. It has become a spectacular example of longevity, vigor, and usefulness.

"The best prophet of the future is the past," Lord Byron said. But it becomes increasingly apparent that his observation does not apply to the gas industry.

THE expanding versatility of this great energy fuel was not even intimated a few years ago, when it was considered limited to such uses as lighting, cooking, and heating. Who could have foreseen its vast importance of today for air conditioning, for refrigeration, for drying clothes, for incineration, for thousands of commercial and industrial applications? What was there in the past to even hint at such a future achievement as a forced-air gas furnace operated by gas alone?

The first century and a half for the gas industry obviously serves as no criterion for the future. The past, therefore, serves only as a measuring device to ascertain how far and how fast we have advanced. The accent is on tomorrow.

Gas people everywhere, the hundreds of thousands who work for it and invest in it, are eagerly looking ahead to new opportunities and greater accomplishments. It thus is only natural that the theme of this year's American Gas Association convention is: "New Horizons for Growth and Service." Incidentally, you must have detected that *gas* is unmistakably linked with growth and service. It happens to be true.

Future Is Exciting

DURING the 41st annual AGA convention, the people who serve gas to every corner of this nation are getting down to brass tacks. They are exploring New Horizons from all viewpoints—dealing with research, supply, management, operations, sales, financing, and other specifics. They are excited about the future and confident of success.

The New Horizons which the gas industry faces are not mirages. They are realities, close at hand and accessible. The New Horizons are regarded as destinations, definite goals which can and will be reached. Take research, for example.

AGA decided last year to reappraise the entire gas industry research effort, making a study which would reveal not only what was being done but what more should be done to insure our future. The Battelle Memorial Institute was engaged to survey the industry and offer recommendations on the scope and financial requirements of an expanded research program.

The study revealed that the industry, to capture and hold the imagination of the public with the modernity and superiority of gas, must provide a continual flow of newer, better, more economical, more convenient, and more attractive appliances.

More Money Urged for Research

BATTELLE recommended that AGA's present $2 million annual research budget be doubled at the earliest possible

date, and that it be increased to $6 million as soon thereafter as might be practicable, preferably by 1965.

But even this expansion was not deemed fully adequate by the survey experts. They recommended that research at the company level—primarily among appliance and equipment manufacturers—also be stepped up in scope and budget. The entire industry, Battelle said, should raise its total annual research expenditures from the present $4.8 million to $9 million as soon as possible, and to $14.5 million by 1965. The recommended 1965 budget would include $6 million to be spent by PAR, $7 million by manufacturers, and $1.5 million by gas companies.

IMPLEMENTATION OF the Battelle recommendations already has begun under AGA's leadership. The association's board of directors has taken the all-important first step by approving the raising of $600,000 in additional PAR research funds in 1960. This amount excludes the normal increase in research subscriptions which, on the basis of predicted industry revenue growth, represent about $100,000 annually. With such a $700,000 increase during each of the next five years, AGA will be able to meet the $6 million budget recommended by 1965.

Product development, vital though it is to the future, does not represent the sole objective of the expanded research program. While approximately half of the first year's budget will be devoted to research aimed at market retention and acquisition, the other half will be equally divided between projects dealing with the improvement of gas industry operations and the development of future sources of supply.

Just how tomorrow's research funds should best be spent can be summarized briefly: They should be used to tailor every new gas appliance, every utilization technique, and every operating system to its task. This is the only way to meet and beat competition—by insuring that each is perfectly suited to its job.

Promotion Presents a Challenge

If the New Horizons for research are broad and challenging, there are equally promising vistas for the gas industry to advertise and promote its products and services. Already the thrusts of competition are being met with aggressive, hard-hitting programs at national and local levels—and it is no secret that these effective efforts will be stepped up to meet every challenge.

Through AGA, the gas industry now spends nearly $6 million a year for national advertising. This includes not only print advertising but the national television program, "Playhouse 90," which has produced a strong sales impact and a clear image of a dynamic industry.

Just how strong and how clear is borne out by research studies which have analyzed the relative attitudes toward specific gas appliances among "Playhouse 90" viewers and nonviewers over the past several years. The surveys showed that the favorable attitudes toward gas have gained far more rapidly among viewers than among nonviewers, and the differential is growing at an encouraging rate.

Promotional Undertakings

CONVINCED that the program is one of its most effective and most essential activities, the gas industry now is sponsoring "Playhouse 90" for the fourth straight year. Approximately $3.5 million will be spent for television in the 1959-60 season. An outstanding development in gas sales promotion is the Gold Star campaign, launched earlier this year as a direct and massive assault on the competition's traditional stronghold, the top-quality, higher-priced "luxury" appliance. This gigantic drive—far and away the biggest promotion undertaken by the industry to date—was started by pushing top-of-the-line gas ranges built to the highest standards ever adopted. Eventually the program will be expanded to cover all types of gas appliances.

Importance of Public Relations

WHILE advertising and promotion are instrumental in developing consumer preference for gas and thus contributing to industry growth, public relations programs at all levels play a vital supporting rôle in helping win and hold customers. Whenever the elements essential to continued gas industry health and prosperity are considered, the need for constantly improving the public's image of our industry must be recognized.

Meeting the challenge of public opinion demands a knowledge of existing attitudes. A major move to determine this has been made in recent months. The Opinion Research Corporation conducted a national survey of public attitudes toward the industry, the first such study in many years, and without doubt the most intensive ever made in the gas business. This confidential survey was jointly sponsored by AGA and the Independent Natural Gas Association of America.

THE findings will serve as a valuable guide for the industry's national public relations activities, as well as for the promotion and advertising programs which also carry the gas industry message to the public. The study should prove equally useful at the local community level where gas companies must often

serve in the face of public ignorance, misunderstanding, and, in some instances, indifference.

Sales Prospects Are Bright

NEW HORIZONS for customers and sales are extremely bright. Between now and the end of 1970, utility customers will increase from almost 33 million to more than 45 million. And a tremendous gain will be shown in residential and heating customers—from approximately 20 million to more than 34.5 million.

Industry sales are, naturally, headed for a tremendous rise during this period —soaring from 86 billion therms to 162 billion.

Revenues will more than double —from about $5 billion this year to almost $12 billion in 1970.

OBVIOUSLY, THE EXPANDING MARKET for gas service will require huge expenditures for providing facilities for production, storage, transmission, and distribution. It is estimated that the nation's gas utility and pipeline companies will spend an average of nearly $3 billion annually in the next decade—going from $1.86 billion this year to $4.3 billion in 1970. It is thus readily apparent that the gas industry is making ever-increasing contributions to the nation—not only in providing service, comfort, and convenience for millions of Americans, but also as a potent factor in the U. S. economy in purchasing material and equipment required for vast expansion.

THE gas industry is well aware that it will not go unchallenged in its rapid growth. Other fuel and power services also exist, and new ones are being developed. Each has its particular applications, of course, but there are and will continue to be important areas where these applications overlap and compete. The competitive situation, already keen in many fields, will undoubtedly become ever more intensive.

The matter of competition is sometimes looked upon as a "battle of the fuels," but the word "battle" suggests only a short, sharp engagement between opposing forces. Even "campaign" is inadequate, for that term generally applies to a series of battles in a specific area of operation.

Actually, the competitive situation appears to be more like a full-scale long-term war in which the gas industry, as a major energy industry, has enlisted "for the duration."

THE gas industry is fully mobilized to meet the challenges which loom on the horizons immediately ahead. Everything that is being done—as reflected by the panoramic scope of this year's convention—points to its resolute determination to achieve victory.

The industry is confident that it possesses the man power, the armament, and the espirit de corps which will make it a winner.

Some Observations on the *El Paso Decision*...

[On August 10, 1959, the Federal Power Commission issued Opinion No. 326 in the Matter of El Paso Natural Gas Company, Docket No. G-4769. This decision determines the jurisdictional rates of El Paso for the period April, 1955, through December, 1957. Since there are indications that the decision represents the policy of the commission with respect to the treatment of certain tax benefits, it has assumed special significance to the gas industry. It has further implications because of its effect upon the evaluation by managements of integrated companies such as El Paso to undertake exploration, development, and production of natural gas.]

By RICHARD A. ROSAN*

THE evaluation of any decision must be made against certain basic premises. For purposes of considering the El Paso case, the following premises are suggested:

First, will the decision assure over the foreseeable future an adequate supply of natural gas for our nation? This must be a fundamental test of regulatory, as well as business, policies concerning the gas industry. The immediate impact upon gas supply or the impact during the next five to ten years is not the decisive test. The more important test is whether the policy will assure an adequate gas supply to justify and support the present $20 billion gas industry for the indefinite future.[1]

The recognition of new economic forces by the investing public tends to be slow.

An outstanding example is the considerable period of time it took the investing public to realize how inflation undermines the value of savings bonds. When such realization became widespread in the public's thinking, hedges against inflation, such as common stocks, commodities, and, in some cases, real estate, became the order of the day. Thus, the economic impact of present decisions may not be felt in terms of gas supply immediately; nevertheless, their long-term implications will undoubtedly be recognized. If such long-term implications tend to be adverse to the production of gas, it may be too late at that time to correct the trend of public opinion.

*Vice president and counsel, Columbia Gas System Service Corporation, New York, New York. For additional personal note, see "Pages with the Editors."

SECOND, will the decision assure a sound and economical growth of all segments of the gas industry? For example, will the principles enunciated promote a degree of stability in the earnings of each segment of the industry? Will the implications of the commission's cost classification and allocation or rate design procedures assure that expansion programs will be justified on the basis of realistic cost estimates?

Third, will the decision be workable? For example, are the decision's policies susceptible to universal application with generally equal treatment? A ramification of this test is whether in fact the decision resolves some of the pressing problems confronting the commission. This is most pertinent since it is apparent that the commission has attempted after long consideration to set forth some policies as a guide in future proceedings.

FINALLY, what is the decision's immediate financial impact upon El Paso? This is, of course, a most important aspect of the decision. A commission release suggested that the refunds, together with interest, for the impoundment period of two and three-quarter years will be approximately $15 million. Apart from such information, it is apparent that a difference of approximately $10 million between the annual cost of service supported by El Paso and that allowed by the commission must have a substantial financial impact.

As developed below, we are forced to negative conclusions on all four tests when evaluating the El Paso decision. With this background, let us consider three parts of this decision: (1) several miscellaneous items having regulatory significance; (2) the commission's discussion and conclusions with respect to certain cost classification, allocation, and rate design problems; and (3) the commission's treatment of certain tax benefits (incentives) and return on well mouth properties.

Miscellaneous Items

A. THE commission approved over its staff's objection adjustments to the 1955 test-year cost of service for wage increases, effective in May, 1956. In view of the fact that this decision was to cover not only nine months of 1955 but the years of 1956 and 1957, this adjustment does not seem unusual. What seemed unusual was the staff's objection to it.

B. THE commission permitted as an item in the cost of service approximately $48,000 written off as a business loss during the test year. Apparently, El Paso had advanced to a producer some $48,000 in the hope of obtaining future gas supply from such investment. By 1955 it appeared that such investment should be written off as a loss. The commission's action in including such loss as a cost in the test period is a most encouraging sign. It has been quite common in rate proceedings to eliminate losses or expenses incurred during a test period on the theory that they were *nonrecurring*. This has resulted in a continual penalty to the stockholders of regulated enterprises.

While the specific item might be nonrecurring, it is also true that in most large business enterprises such as those appearing before the commission other nonrecurring losses and expenses will normally be incurred in subsequent years.

Thus, a cost of service may properly include so-called nonrecurring losses during the test period if it may be reasonably expected that a company may experience in the ordinary course of its business comparable losses or expenses in the future.

C. The commission approved the annual accrual rates agreed to between the staff and El Paso, which included 4-½ per cent for storage properties and 3-½ per cent for transmission properties. The acceptance of these accrual rates is significant. Considering our dynamic technological society, the factor of obsolescence and inadequacy is being greatly accelerated. Similarly, the competitive aspects of the natural gas industry dictate conservative depreciation policies on the part of management. Thus, the adoption of higher rates should assist the industry. The decision is also significant in view of the considerable time and effort expended by the staff and others in the pending Tennessee rate case at Docket G-11980 opposing Tennessee's use of a 3½ per cent accrual rate on its transmission property.

WITHOUT EXAMINING the record to determine the validity of the study based upon the remaining life method for accruing annual depreciation introduced by an intervener, it seems unfortunate that the commission deemed it necessary to attack so strongly on page 5 of its opinion[2] the remaining life method. Reputable authority supports such method, especially where one of the factors to be considered is the continuation of gas supply from present sources and the new investment costs and possible retirement losses in the event of substantial changes in the sources or types of gas supply.

On balance, these various miscellaneous items are generally favorable to the regulated company. They include within the cost of service dollars which the company must expend; unfortunately, too often regulatory orders indicate an unhappy tendency to eliminate from the allowed cost of service dollars of expense which are just as important as the dollars of return included in the total cost of service.

Cost Classification, Allocation, and Rate Design

The presentation before the commission with respect to cost classification, allocation, and rate design matters was, it is believed, most exhaustive. The issues on these matters were sharply contested between the high load factor customers and the other customers of El Paso. Despite the wealth of testimony and evidence before it, the decision does not reflect any persuasive support for continuation of prior policies or any constructive revision thereof.

In connection with the classification of costs, the commission reaffirmed its policy that the production costs should be classified 100 per cent to commodity. As in the past, the justification for this classification is that because the uniform practice in the industry is to sell gas in the field on a straight commodity basis, there appeared to be no justification for a difference in treatment of the costs of an integrated pipeline related to its production of gas. This rationale overlooks a

basic and generally universal provision in most field purchases; namely, the seller is protected by substantial minimum take-or-pay-for clauses.[3] The take-or-pay-for clause assures minimum revenues to a producer to compensate for the fixed costs connected with production properties.

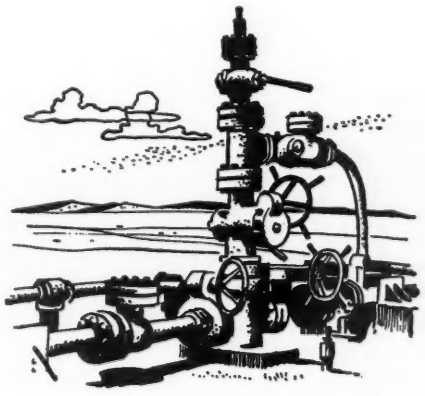
From the point of view of the buyer, such clauses constitute a fixed obligation just as does the demand charge in a two-part rate. Where the pipeline undertakes to produce, it is entitled to the same measure of protection enjoyed by the independent producer. Yet, in this case the commission has classified some $107 million of gas purchase and production costs to commodity. Clearly, some part of this expense, such as return and related taxes on El Paso's sizable investment in production properties, has demand or capacity characteristics and should be so reflected in the cost classification and, ultimately, the rate design of El Paso.

Controversial "Seaboard" Formula

ON page 23 of the opinion, the commission reaffirms in principle its "Seaboard" formula of classifying costs.[4] The commission states that it may be true ". . . that a high load factor customer will pay more of the capacity costs than a low load factor customer of the same demand; but the high load factor customer is obtaining greater service from the pipeline and properly can be required to bear a larger proportion of the capacity costs."

This statement is based upon either an unusual connotation of "service" or fallacious reasoning. If the word "service" is used in the same sense as "consumption," then it is true a high load factor customer consumes more units. This is not *service* but purely a volumetric commodity concept. Obviously, the high load factor customer does not obtain any greater service than the low load factor customer with the same demand; the service performed is the capacity made available. Both customers have the same capacity provided for them. The high load factor customer makes a greater use of the capacity provided for him. But, he is penalized for an economic use of costly capacity by reason of being required to pay part of the costs incurred for the less efficient user of other equivalent capacity.[5]

ACTUALLY, a high load factor customer *enables* himself to purchase gas at a high load factor generally as a result of considerable investment in storage or peak-shaving facilities or as a result of enterprise in achieving better load balance. It does not follow that because of this the high load factor customer should be required to bear a portion of costs for capacity which he does *not* use at any time. This is hardly a just and fair result.



Dissension Pervades Gas Industry

THERE is ample evidence of growing conflict between the various elements of the natural gas industry. Any objective observer must be impressed with the fact that the rate hearings and the economic aspects of certificate hearings before the commission are becoming more highly contested. This growing controversy and conflict stem, in the opinion of the writer, from the fact that the gas business is a highly competitive one. In every phase of its sales it meets stern competition from electric power, oil, and coal. The price advantages which the industy has enjoyed for the last twelve to fifteen years are narrowing. The repetitive requests for rate increases are creating a public relations problem in many areas. Thus, it is inevitable that the economics of pipeline expansions, the fairness of cost allocations, and proper price differentials between high and low load factor operations are more critically examined and challenged.

THE Seaboard formula and the above-quoted rationale obscure the true and fair costs of rendering various types of gas service. The economic evils stemming from this failure to determine factually the true cost of service are many. First, they lull the industry and the commission into fallacious concepts of the economic feasibility of marginal projects. Public convenience and necessity do not require that everyone have gas service; convenience and necessity must be measured by sound tests of economic feasibility. Second, they discourage sound operating procedures or objectives by loading costs on the company which efficiently uses pipeline capacity provided for its use.

For example, as a pipeline rate tends toward a flat commodity, the economic justification of underground storage projects cannot be demonstrated. Likewise, the economic justification of terminal peak-shaving facilities or the attraction of interruptible industrial and commercial load (not boiler fuel load) becomes increasingly difficult. Despite the overwhelming evidence that such operating procedures or objectives are sound and advantageous to all consumers, the company following them is penalized under the Seaboard formula of assigning costs.

Unhappy Classification of Costs

FINALLY, the classification of costs which the commission has adopted gives an extreme end result. Of a total cost of service of approximately $160 million, the commission finds that only approximately $24 million is demand cost. In other words, if this cost classification is followed, approximately 85 per cent of El Paso's revenue should be recovered through the commodity component of its rates. In view of the rigidity of costs experienced by most enterprises such as El Paso, the recovery of 85 per cent through the commodity component can result in wide fluctuations in revenues with a consequent lack of stability in the income of such regulated company.

The decision discloses a lack of understanding of various allocation concepts discussed. For example, on page 19, the opinion states:

The demand-commodity mile meth-

od gives greater effect to the distance factor than the zone method.

Two things should be noted: First, the demand-commodity mile method gives effect *only* to distance and ignores all other factors. Thus, it is an understatement to suggest it gives *"greater effect."* Second, a true zone study gives full recognition of the effect of the distance factor on cost, but also gives recognition to the numerous other factors which affect cost. Therefore, the mileage method, if it gives "greater effect" to distance than a zone method, overemphasizes the distance factor.

On page 21, it is suggested that the "factor of distance can be given effect in rate design." This, of course, opens the door to adjustments of cost responsibility between customers without any objective standard. A proper cost analysis and allocation study should give effect to distance; such study should disclose objectively and with reasonable accuracy the costs of rendering service to various zones and classes of customers.

Taxes and Return

THE commission's treatment of certain tax benefits has undoubtedly created the most interest in the El Paso decision. The treatment of liberalized depreciation—namely, normalizing the accelerated tax deduction for rate case purposes—is in keeping with the accounting order which the commission has heretofore issued.[6] The treatment is helpful since it will immeasurably assist the capital-hungry utilities with tax benefits Congress intended expanding businesses to have, and at the same time assure equal treatment between present and future consumers.

> THE COMMISSION has treated in identical fashion two tax benefits available to producers of natural gas; namely, (1) the right to elect for tax purposes to charge as expense against the year in which the expense is incurred the intangible cost connected with the drilling of productive wells (generally referred to as intangible well-drilling costs), and (2) the right to elect the 27½ per cent statutory depletion allowance in place of cost depletion where such statutory depletion permits greater tax deductions (generally referred to as depletion allowance). In substance, the commission held that such tax benefits belong to the producer; however, such tax benefits being **contributions** by the customers may be properly considered as return on the well mouth properties[7] and should be taken into consideration in determining the allowable return and rate of return (page 15).

Since the tax saving from the two tax benefits amounted to $6.4 million and such amount was equivalent to approximately an 8.61 per cent return on the well mouth production properties, the commission provided no return upon the well mouth properties.

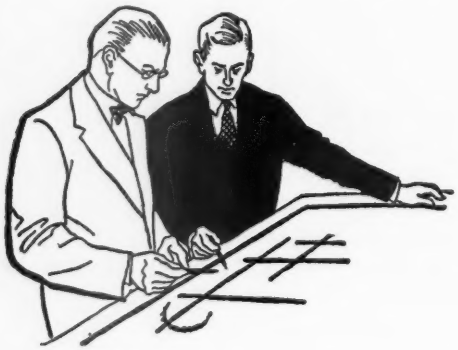
Clearly, the Federal Power Commission did *not* give the producers the tax benefits. It has merely given El Paso sufficient dollars in its cost of service which, after taxes, produce a return on certain production properties and an overall rate of return to El Paso which the commission considered adequate on the state of the record.

Tax Benefits Pose Questions

LET us consider some of the interesting questions raised or suggested by this treatment of the two important tax benefits enjoyed by producers of gas, as well as persons engaged in other extractive industries:

A. IF the tax benefits on well mouth properties produce a return which is inadequate, the commission states that it would allow a return that would exceed the tax incentives (page 18). Thus, a "floor" on the return for production properties must be determined by the commission.

B. THE decision does not indicate what the commission would have done if in the particular test year the tax benefits were of such a magnitude that they would have produced a return of 18 per cent on El Paso's well mouth properties. Having determined such benefits belong to the producer, it is difficult to see how this higher return could be reduced. Obviously, many unusual situations will develop where producers in the same area may be allowed, after taxes, on their production properties varying amounts of return between the "floor return" and any unusually high amount resulting from the happenstance of the tax benefits.



C. THE opinion and the dissenting opinion seem to recognize that (1) a transmission pipeline enterprise is less hazardous than an integrated operation, including production as well as transmission, and (2) an integrated operation is less hazardous than that of the independent producer. This conclusion as to relative risks is of importance to integrated companies.[8] Clearly, in so far as the commission can more accurately determine and allow exploration and development costs for an integrated company than it can for an independent producer, there is less risk and hazard to the integrated company. It is not clear, however, how an integrated company can demonstrate the additional return required on its production properties or how much overall rate of return it needs compared with a straight transmission pipeline.

The decision is somewhat obscured by the fact that no rate of return evidence was adduced. Clearly, El Paso was seeking an overall rate of return of 6 per cent on all its plant, including the $74 million of well mouth properties, plus the tax incentives, which would have increased the allowed revenues of El Paso by approximately $10.3 million. If the tax benefits can be considered part of return, El Paso would earn approximately 7.1 per cent on its total rate base of $549.5 million. By reason of the commission's approach, El Paso's assumption, apparently joined in by the other parties, resulted in a failure of proof and the commission allowed 8.6 per cent return on well mouth properties and 6.35 per cent on its overall rate base.[9]

SOME OBSERVATIONS ON THE EL PASO DECISION

HAVING INDICATED that the independent producer has a greater risk, it is clear that the finding as to adequacy of 8.6 per cent on well mouth production properties is not determinative of rate of return for the independent producer. Consequently, it would seem that the commission is still confronted with a basic problem; namely, how much return, after giving effect to tax incentives, is required in order to assure the continued exploration and development of natural gas supplies. Certainly 8.6 per cent return on well mouth properties or 7 per cent on overall production and gathering facilities is not the final answer!

Com· sion Seems to Contradict Itself

D. MANY of the commission's statements are seemingly contradictory. At page 14, it stated that it did not credit a percentage of the federal income taxes relating to depletion, accelerated depreciation, and intangible productive well drilling to working capital because:

> In accordance with our views discussed above these amounts should inure to the benefit of El Paso; they do not belong to the consumers and should not be offset against the working capital requirement.

On the following page, while discussing rate of return, the commission stated:

> Such benefits represent contributions by the customers, may be properly considered as return, and, therefore, should be taken into consideration in determining an allowable return and rate of return.

On page 15 the commission also stated:

> The fair rate of return, which must enable the company to operate successfully, to maintain its financial integrity, to attract capital, and to compensate its investors for the risks assumed, is *ordinarily* a very important factor to be considered in arriving at just and reasonable rates. (Italics supplied.)

At page 16 the commission stated:

> We have also made it clear that Congress intended that a producer such as El Paso, should retain the benefits of the tax incentives. In retaining these benefits, as can be seen, El Paso actually would earn a rate of return on its overall rate base which is slightly more than 6 per cent, so that we have no difficulty finding that its return will be adequate and its financial integrity maintained.

The commission fails to supply the necessary connection between these two latter statements.

THERE are other tax benefits which the commission did not mention. For example, early in the history of the tax laws Congress decided that a company should have the original cost of its property returned to it tax-free over the life of such property; therefore, depreciation has been allowed as a tax deduction. With respect to producers of natural resources it decided that the companies should retain free of taxes the "fair market value," or, as the commission stated at page 10,

> . . . a tax-free return of capital—that is, not merely the original cost but the value of the property . . .

Adds and Subtracts Company Rights . . .

THE commission recognizes that percentage depletion was a substitute for discovery depletion and was designed as an administrative convenience. Under these circumstances it might as logically deduct the depreciation on El Paso's pipelines from the return allowance as the depletion allowance or the intangible well-drilling deduction. In effect, the commission has said the company has two rights: (1) a right to certain tax benefits, and (2) a right to a return allowance on its property. Since it has recognized the right to the tax benefits it deducts such benefits from the other right! The foregoing suggests a confusion between a **return on** capital and a tax-free **return of** capital. In so far as statutory depletion is a recognition of a tax-free return of capital (see cases cited on page 10 of opinion), the use of such tax benefits as a return **on** capital deprives a producer of essential rights to recover capital.

Treatment of Intangible Well Drilling

E. In another matter before the commission,[10] there was a sharp division between the parties, including El Paso as an intervener, with respect to the treatment of intangible well-drilling costs. As previously mentioned, the commission does not make any distinction in its treatment between intangible well-drilling costs and statutory depletion. Yet, many people think that there is an important distinction.

Intangible well-drilling costs are charged as expenses in the year incurred for tax purposes, thereby using up all of the tax deduction that such expenses generate. For book purposes intangible well-drilling costs are capitalized and depleted or depreciated over the life of the underlying gas reserves. Thus, it is argued that intangible well-drilling costs are similar to accelerated amortization or liberalized depreciation in that Congress has permitted an acceleration of the deduction for taxes, even though for book purposes the item is depreciated or depleted over a long period of time. In order to match the depreciation or depletion expense with the offsetting tax benefit, as well as prevent wide fluctuations in annual net income as affected by the magnitude of the drilling program and resultant tax deduction during the year, it has been contended in other cases that intangible well-drilling costs should be normalized for rate purposes and a reserve created pursuant to the commission's Accounting Order No. 203.[11] Thus, future customers

would share in the tax benefits accruing from the intangible well-drilling costs being borne by such customers, but currently the company would receive a cash benefit in the nature of an interest-free loan from the government. Such cash benefit could be used for further exploration and development.

EL PASO and other producers have argued to the commission that intangible well-drilling tax deductions should be normalized for rate purposes. In other words, the deduction as taken for tax purposes should not be used in computing federal taxes for rate purposes. However, no reserve is suggested; rather the tax benefit is reflected in income.

It must be assumed that the commission considered and has rejected the deferment argument apparently on the theory that the cost depletion[12] would not be used in subsequent years but only statutory depletion. Accordingly, the intangible well-drilling benefit becomes a "tax saving." (See page 11 of opinion.) While it is possible that in many cases a company would use statutory depletion rather than cost depletion, some companies, especially those with less prolific production properties, find that cost depletion is more beneficial than statutory depletion.

Statutory Depletion and Rate of Return

F. ANOTHER aspect of the decision requiring considerable thought relates to the concept that benefits of statutory depletion should be considered in fixing the return on well mouth property. It seems to overlook the purpose of statutory depletion. For example, under discovery depletion, which was replaced by percentage depletion in 1926, if a producer drilled a well with an investment of a million dollars and discovered reserves having a value in place of $4 million, the statute recognized that the producer's capital had been increased from $1 million to $4 million, and he was permitted a tax deduction of $4 million over the life of the property. Percentage depletion did not change the theory of discovery depletion but provided a mathematical basis for determining the amount of the deduction without relying upon controversial estimates of "fair market value" of reserves at the time of discovery. The producer is allowed a deduction for depletion in the amount of 27½ per cent of the gross income but not more than 50 per cent of the net income from each producing property. Thus, while the purpose of the percentage depletion allowance is to permit the producer to recover tax-free the increase in his capital assets resulting from the discovery and production of natural resources, the commission would deduct the tax amortization of this capital asset from the return allowance to which the producer is entitled as a matter of constitutional law.

G. UNDER the original cost theory, applied to a cost-of-service approach to the regulation of the producer, there appears to be no compensation for the value of the reserves discovered unless through the depletion allowance. In other words, with a well mouth investment of $10 million, it is possible that vast gas reserves would be recovered. These reserves must have a value; yet, under the concept of regulating on a cost-of-service

basis and applying a rate of return merely to the well mouth investment, no value would be assigned to the reserves. In so far as a producer is allowed to keep the tax benefit, there would be some value to the reserve as distinguished from the investment in the well mouth facilities.[13] In so far as this tax benefit is applied in lieu of return on the well mouth facilities, then, of course, this compensation for the reserves is lost.

H. FINALLY, in the case of a producer the commission is attempting to determine the well mouth value of the gas. The depletion allowance will ultimately be determined in large measure by well mouth values. Accordingly, the amount of the depletion allowance depends upon the values the commission assigns to the gas at the well mouth, which, in turn, under the El Paso decision, may depend upon the magnitude of the depletion allowance. Thus, in many respects a circuity of reasoning is involved.

Conclusion

WITH respect to tax incentives and rate of return, the El Paso decision recognizes that an integrated company with production facilities is more hazardous than that of a transmission pipeline. Thus, in this particular case, El Paso is being allowed an equivalent of an overall return of 6.35 per cent on its original cost rate base, which on the state of the record is more than it would recover if it were merely a transmission operation. The question still remains; namely, how much rate of return is required for an independent producer, after giving effect to tax incentives? Since an adequate record was not developed, it is also true that the decision is not definite as to the rate of return an integrated company should earn on its production properties.

The commission courageously faced the arguments of alleged "windfalls" advanced with respect to liberalized depreciation; it failed to extend its sound thinking into the realm of intangible well-drilling costs, even though its accounting rules seemed to suggest a satisfactory method of handling the problem.

WHILE the El Paso decision states that the producer is entitled to the tax incentives, clearly the producer is not receiving such tax incentives as completely as does the nonregulated operator in other extractive businesses. On the other hand, this seems to be more or less an exercise in semantics; the real question is whether the net income, after taxes, allowed the regulated operator is equal to the net income, after taxes, of other extractive enterprises having comparable investment and risks? Judged by the history of earnings of nonregulated industries, both extractive and nonextractive, it seems doubtful whether an 8.6 per cent rate of return on well mouth facilities is adequate or comparable.

Measured by the basic tests set forth at the beginning, we are forced reluctantly to the conclusion that the decision does not assure the exploration and development of an adequate supply of natural gas for the indefinite future; the decision does not seem to offer a workable solution to the producer problems confronting the commission; the decision, if applied universally, will possibly result in substantial differences in the treatment among producers depending upon the peculiar op-

erating circumstances or happenstance of the test period; and finally some of the cost classification, allocation, and rate design principles enunciated in the decision will not contribute to a sound growth of each segment of the industry.

Footnotes

[1]Currently, Congress is concerned with the adequacy of the nation's energy resources. On June 16, 1959, a subcommittee of the Joint Economic Committee of Congress was announced to "undertake an examination into the long-run adequacy of United States energy resources . . ." Other groups are advocating a national fuel policy in order to use most effectively the available energy resources. Natural gas has an important rôle in the nation's energy future.

[2]All page references herein are to the mimeographed copy of Opinion 326 issued by the commission.

[3]Because of the operating hardship such clauses place upon pipeline purchasers, it is not unlikely that there will be an effort in the industry to obtain two-part rates for producers.

[4]Undoubtedly, as a matter of administrative convenience, the commission sought a "formula" by which its staff can quickly assign costs. The Seaboard formula, first promulgated in Opinion 225, has been the source of much complaint and dissatisfaction within the industry. Exhaustive studies by various segments of the industry have led to the conclusion that there is not one single formula validly applicable to all companies subject to the commission's jurisdiction. Analysis of cost behavior is not susceptible to the oversimplification suggested by the Seaboard formula; neither the complexity of making a valid cost analysis nor administrative convenience affords an excuse to use a "formula" which fails to determine the facts (*i.e.*, the true and fair cost of rendering the particular service).

[5]Historically, the high load factor customers initially made the long-distance pipelines possible; gradually service has been certificated to low load factor customers. This has been possible only because of assessing the initial high load factor customers with a disproportionate share of the total costs. Currently, competitive prices and consumer resistance are making the high load factor customers more vocal against this treatment.

[6]Order No. 203 issued May 29, 1958, in Docket R-158. See also the commission's order issued August 29, 1956, in Re Amere Gas Utilities Co. 15 PUR3d 339, 16 FPC 880.

[7]El Paso's production and gathering facilities aggregated $248,631,000; the commission allowed a 6 per cent return on about $174,195,000 of production and gathering (nonwell mouth) and used the tax benefits for return on about $74,436,000 of well mouth production property.

[8]In prior decisions, the commission indicated that pipelines were getting out of the production business. This trend was not considered desirable and the commission used it as justification for allowing Panhandle field prices for its own production. Although El Paso is allowed 8.6 per cent return on *part* of its production and gathering properties, a large body of opinion sampled by the writer indicates that this will probably be an inadequate incentive for the integrated companies to undertake widespread exploration and development.

[9]Significantly, there is no discussion of the rate of return required upon the total production and gathering facilities of El Paso amounting to $248,631,000. *Query*—how valid for rate or return purposes is the distinction between nonwell mouth and well mouth production properties? If the total production and gathering properties of El Paso were considered, the 8.6 per cent return discussed in the opinion would be substantially reduced (around 7 per cent) and be much less comparable to the 9 per cent used in many producer cases by the staff and in examiner decisions.

[10]Re United Fuel Gas Co. Docket No. G-2451 et al. Oral argument held on March 17, 1959.

[11]Section 201.266:3 Accumulated Deferred Taxes on Income—Other. It was thought by some that the inclusion of this subsection in the Uniform System of Accounts was made with the deferred treatment of intangible well-drilling costs in mind.

[12]The Internal Revenue Code provides that in no event shall the depletion deduction be less than depletion computed on cost. 26 USCA 611-613. In other words, if 27½ per cent of the gross income or 50 per cent of the net income from a producing property is less than the producer's costs related thereto, he may claim such costs as depletion in lieu of percentage depletion.

[13]El Paso's brief at G-2451 makes a strong argument at page 23 that rather than provide the necessary incentive for exploration by adjustment to rate of return, the proper measure of the needed incentive with respect to a particular producer over and above the usual rate of return on production properties is the actual amount of the producer deductions allowed by Congress. We question whether all independent producers would agree that this is sufficient incentive.

Rate of Return—

the Utilities' Most Tilted Windmill

By The HONORABLE WILLIAM R. CONNOLE*
Member, Federal Power Commission

Higher costs not only of gas but of equipment, labor, and money, as well as increased competition from other fuels, now harass the gas industry. Even higher rates of return do not provide the magic solution. Actually, expert management methods are needed that include more sensible cost allocation and pricing principles. In any event, the job will not be easy.

"TILT" means a different thing to the pinball machine addict, the utility savant, and the devotee of classical Spanish literature. About the only thing the meanings have in common is a connotation of frustrated futility. Here we are concerned with the utility industry's "tilting," more exactly, the natural gas pipeline's "tilting." We explore the quixotic jousts with the flailing arms of the traditional rate of return and, by a none too neat transition, the other kind of tilting, this time of rate components. But first, to the Windmills!

The agitation for an increase in the allowed rate of return for the natural gas pipeline industry has been rising like a tide in recent years. Like the tide, there is no perceptible forward movement at any one moment. Rather, there is a series of waves, each of which becomes just a bit more insistent than the preceding one. Only when one recalls where the high watermark was a year or so ago is one made completely aware that the rate of return issue is indeed growing in importance.

*For additional personal note, see "Pages with the Editors."

THE most frequent explanation for this agitation is the sharply rising rates of interest on borrowed money. These rising rates reverse a trend that began back in depression years and continued into the fifties. This phenomenal reversal is the most outstanding single characteristic of the recent money market in the United States and Canada. Indeed, throughout North America, interest rates are now higher than at any time since the thirties.

This condition has developed concurrently with unprecedented expansion of the natural gas pipeline industry. Costs of each mile of line are higher than ever before. Huge quantities of new money, some $400 million per year, must be attracted into the industry to finance this construction. Traditionally high debt ratios of the industry, together with relatively rapid rates of amortization of the earlier and lower interest rate pipeline mortgage loans, have aggravated the impact of these conditions on the pipeline industry. All these and many more influences combine to provide a force that draws the tides of agitation for higher rates of return ever higher about the regulatory commissions' feet.

Some Contributing Forces

HOWEVER, a third set of factors, unique to the regulatory context in which the natural gas pipeline industry operates, serves to lend an even greater impetus to the demands for higher rates of return.

THE FEDERAL POWER COMMISSION has not rendered a definitive opinion on rate of return since the phenomenon of higher interest rates ceased to be merely a convenient arguing point in rate cases and became a permanent and uncomfortable fact of financial life. This is not the doing, nor the intention, of the commission. In recent years, many rate cases have been settled on stipulations that have included the acceptance of a rate of return lower than originally represented as necessary. Usually this rate is 6 per cent, although a rate of 6¼ per cent rarely may be found. Meanwhile, the frequency of increased rate filings has meant that an overburdened commission and staff, despite improvements in efficiency and management techniques that have been praised by the Congress and the Bureau of the Budget, have been simply unable to complete one case before another is dropped in the hopper.

Consequently, unsettled rate cases, concluded with opinions and orders after hearings, have covered so-called "locked-in periods." These are periods during which one set of rates is in effect, not for an indefinite future time, but for a known period.

Naturally, in such cases, the risk factors, including cost of money, are known and determinable and the controversies over rate of return are less acute.

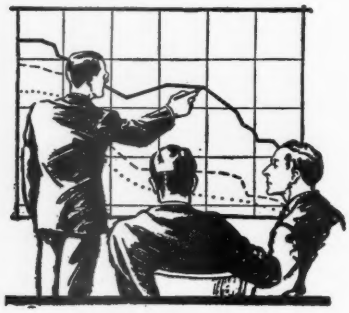
Interest Rates Are Important

WHAT can the industry look forward to in the way of recognition of money market conditions? Can the regulatory community be expected to react to increases in the interest rate with the same alacrity and sensitivity with which it reacted to the 2.65 per cent triple A rate of the late 1940's?

A 6 per cent rate of return is not as sacrosanct as the matter of fact manner

it is used in many commission rate orders would suggest. Actually, it is of fairly recent origin, dating from about 1932 or 1933. Moreover, the 5 per cent rate of interest now being charged on prime commercial paper by New York banks is high only by recent standards. True, it has not been since October, 1929, almost exactly thirty years ago, that the prime rate reached that level. But the point that is often overlooked is the briefness of the period during which rates of return of 6 per cent or less prevailed and in which the New York prime rate was less than 5 per cent.

In the period from the close of the Civil War to the Great Depression the prime rate on short-term commercial paper was above 5 per cent for the majority of the time, by far. Similarly, during that period the interest rate on high-grade railroad bonds, the equivalent risk of a corporate Aaa, was above 4 per cent almost continuously. During the First World War and the inflationary period that followed, 8 per cent was a much more common level for allowed return than any other figure for the electric, gas, and telephone industries. Only for the water companies was a more limited return, about 7 per cent, commonly allowed.



Low interest rates have been characteristic of the money market from the crash in October, 1929, until the early fifties. Rates of return of 6 per cent and lower are also typical of that period.

Of course, the utility industry, the regulatory process, and indeed our entire society have come a long way since the time of more naïve economics that prevailed before the Great Depression. The Hope case, as it has been interpreted, changed everything, too. Nevertheless, it seems significant to this author that no natural gas pipeline has successfully demonstrated the level of return to which it is constitutionally entitled to enable it to meet the test of competition in the high-cost money market that has prevailed in the last few years.

Everyone Does Not Need Higher Rates

DESPITE the apparent coincidence in point of time between interest rates, or costs of debt money and rates of return, the fact that interest rates are once more moving upward does not necessarily signal the need for higher rates of return generally. For one thing, earnings-price ratios and other indicia of the cost of equity capital have not moved in exact phase with the variations in interest rates. It still remains the burden of the utility applicant to demonstrate that its particular circumstance justifies a particular rate of return. Certainly, however, the present financial climate is much more favorable to the making of such a demonstration than anything that has prevailed in a very great many years.

THERE is reason to believe that within the very near future, several proceedings now pending before the Federal Power Commission will have reached a stage where the return issue can be disposed of finally. If necessary, the other issues may be stipulated. Or, to use another approach, the return issue could be severed and treated separately. In any event, a decision on that issue is not far away.

When the proceeding finally reaches the hearing stage, the prevailing high costs of debt money undoubtedly will be advanced in support of a rate of return higher than 6 per cent. This amounts to reliance on cost of money, an approach that not long ago was all but ridiculed by many advocates of more generous return allowances. Here is just another example of the emerging acceptance of a basically sound principle as its reliance and usefulness in varying circumstances become clear to all interests involved with it.

But there is an even more far-reaching consideration that companies, customers, and consumers must bear in mind when applying basic cost-of-money principles to the problem of reaching a proper rate of return. It is at this point that we pass from the tilting at rates of return to the tilting of rate levels.

Rate Levels and Competition

IT is this author's firm conviction that, though costs are an indispensable factor in pricing, the element of competition between energy sources is at least as important. This is becoming increasingly apparent in the natural gas industry, which is the business of this article. It is entirely possible that, no matter how conclusively the justification for a higher rate of return can be demonstrated mathematically *as a cost,* the ceiling on prices may make it difficult, if not occasionally impossible, to reflect this entire cost *as a rate.* With each increase in rate levels for natural gas, another sale becomes a target for a competing fuel. Indeed, in every quarter of the nation price-sensitive sales are moving from one fuel to another as rates vary. Illustrations are common but, for a few, consider these.

THE president of one of the largest pipelines in the nation serving a great metropolitan area, not near tidewater, cited one example this way:

> One of our distributors serves a steam-generating plant with annual requirements equivalent to 18 billion cubic feet of gas. Currently, this distributor is delivering to the plant at the rate of 4 billion cubic feet annually. At another time it delivered about 50 per cent of the plant requirements. Twice in the past few years the distributor lost the load completely, when the plant operator believed it to his advantage to operate with coal.
>
> Once it lost the load when this gas was priced at 25.2 cents per Mcf and regained it at a price of 23.7 cents, only to lose when a utility sales tax increased the effective price to 25 cents and then to regain it at 24 cents, tax included.

ANOTHER well-known example occurred on the lines of the company serving a large electric-generating load near Minneapolis. After fighting its case through the Federal Power Commission and through the United States court of appeals

against the opposition of the coal industry, the utility lost the load in little more than a year as the cost of coal became more attractive than gas at the station. Incidentally, it was on the basis that such a result was inevitable that this author dissented from the order certificating the sale.

On the eastern seaboard, the tight competition between residual fuel oil and natural gas has been relaxed slightly under the somewhat artificial conditions imposed by the Federal Oil Import Control program. Despite this reduction in oil's ability to compete, however, coal continues to be more attractive than gas as a source of fuel for generating plants. Witness the proposal made jointly by the coal-carrying railroads and certain coal operators to Consolidated Edison in New York for a very competitive price on large volumes of coal.

The crucial, critical significance of this competition is that it jeopardizes the off-peak sale. Each Mcf of capacity rendered surplus in off-peak season by the loss of such a sale has a doubled and redoubled adverse effect on the firm customer's sales. First, it piles on his back the added burden of supporting the entire investment responsibility of the capacity needed to serve him on a peak day for a full year instead of sharing it with the off-peak customer. Secondly, it raises the cost of purchased gas to the pipeline by reason of take-or-pay clauses in the pipeline's contracts with producers.

Juggling Costs Can Prove Harmful

If a pipeline cannot sell this gas elsewhere, its only resort has been, and presumably will continue to be, to widen the gap between the demand and commodity component of its rates so that the interruptible off-peak sale, usually made at rates equal to the commodity component, can be retained. This would seem to be a harmless and effective remedy but for one fact. It runs a risk of doing **legally** what may not be done **lawfully.** In other words, tilting the costs allocated to demand and commodity components may just as surely load the firm customer unfairly as if there were no tilting and the sale were lost completely.

For a schedule of rates that attempts to recover from a class of customer more than the proper costs of rendering service to that class of customer is a discriminatory and preferential schedule. As such, of course, it is not a lawful schedule no matter how legal it may be as an applicable rate schedule. If there is no other way to recover those costs, then one of two conclusions inevitably follows. Either management or ownership must be content with something less than full recovery of costs or the customers and the commissions must condone the preference and the discrimination.

What Management Should Do

It is the suggestion of this article that before customers and the commission are asked to do the latter, ownership or management should seriously consider whether their costs, including the newly advocated increase in return, are really necessary and, if so, whether the alloca-

tion procedures necessary to justify a rate schedule that will permit the recovery of those costs is a fair and equitable one.

As appears from even a casual catalogue of pending rate proceedings before the FPC where alleged "tilting" is an issue, this is no academic question. The big question in all cases in which alleged rate "tilting" is proposed, is whether the cost allocation method used to demonstrate that costs will be fairly distributed under the proposed rate schedule is an equitable and accurate one. Naturally, the question of method is increasingly important as the spread between competitive fuels narrows. It then becomes imperative for a natural gas pipeline or distributor to demonstrate the fairness and equity of a proposed allocation that will enable it to retain a sale threatened by an increase in its rates or a reduction in the competitors' prices. Concentrated efforts are now being made to redefine the allocation methods used by the companies and the commissions. The National Association of Railroad and Utilities Commissioners has appointed a committee to investigate the matter. Much more can be done in this area to make allocation techniques more meaningful and accurate.

Allocation Cost System Difficulties

With purchased gas costs in some areas of the United States already skirting dangerously close to the competitive breaking point in large market areas, it is becoming increasingly difficult for pipelines to devise any cost allocation system that will support continued off-peak sales.

This author pointed out such a situation in a separate statement to the opinion and order certificating Midwestern Gas Transmission Company, Docket G-16841. Here is what was said:

> Much of this gas will be purchased by Tennessee in south Louisiana, under the so-called Catco contract, at prices of 23.7 cents Mcf after all taxes. . . . Nevertheless, a new line going all the way from the supply area of south Louisiana to Chicago would have been required to pay more for gas than it could be sold for, retail, in Chicago. It is certainly a crazy-quilt pricing pattern that permits the old Chicago District Generating Company to buy gas on the shores of Lake Michigan at prices lower than a central electric-generating station on the banks of a bayou in south Louisiana can. . . .

For a reaction at the consumer end, consider the recently decided California proceeding[1] wherein a reluctant commission authorized, on an interim basis, a proposal by Pacific Gas and Electric Company " . . . that the base rates in all of its firm rate schedules be increased by 4.95 cents per Mcf . . . and that only the first 10,000 Mcf per month of the regular interruptible schedules be increased by 4.95 cents per Mcf, with no increase beyond the first 10,000 Mcf in the interruptible schedules and none in the steam-electric plant rate. . . . " The California commission showed its concern for this proposal and its understanding of its implications in its order. The commission said:

> The commission is also gravely concerned that the instant increase, all of which occurs in the commodity component at the state line, dollarwise is as-

[1] Re Pacific Gas & Electric Co. A-40926, Decision No. 58791, dated July 21, 1959.

signed more to the firm user because of the showing at this time of potential loss of interruptible load had uniform amounts of increase in cents per Mcf been placed in the interruptible classifications. Applicant is placed on notice that this is an interim decision and a redistribution can be considered should changed conditions, including competitive fuel costs, warrant such treatment pending final decision by the Federal Power Commission. Applicant should also intensively survey and consider additional underground storage facilities or other means of serving its customers, in the light of the trend of increasing source cost of gas, and the apparent inability to fully pass such increases on to large interruptible customers, at least at the present time.

SPECTACULAR increases in costs of purchased gas, dramatically effective competition from a revitalized coal and railroad industry fighting for their economic lives, and steadily increasing demands for higher capital compensation through rate of return, have placed the natural gas industry in a three-way squeeze. Neither reckless tilting at the windmill of the rate of return nor tilting of rate components provides the answer. Rather, it will be found in a careful examination of cost allocation methods, sensible use of pricing principles once costs are determined, and a reasonably restrained policy of producer pricing.

The next few years will place a chilling responsibility on companies and commissions. The question is, will they measure up to the task?

Gaslights Add Glamor to New York

THE June 16th issue of **The New York Times** carried a story in which it was told that gas lamps have been restored to Worth street, in the downtown heart of the textile business, in a move designed to glamorize the neighborhood. (See frontispiece, page 26.)

"A lamp-lighting ceremony . . . caused considerably less opposition than there was in 1825 when illuminating gas was first introduced to New York south of Canal street. . . . six handsome white street standards trimmed in gold will glow after dark. They are spaced along the south side of Worth street between Broadway and Church street in front of a spotless row of cast-iron facades, painted and fashioned to look like brick, stone, and wood, vintage 1870, occupied by textile concerns. Tubs of flowers stand on the sidewalk, and window boxes dress the old buildings.

"The gas lamps were unearthed in Orange, New Jersey, and equipped with new mantles by the Welsbach Corporation of Baltimore. It is deemed sound business promotion to stress ye olden days outside and electronic efficiency indoors."

Tailoring Gas Rates to the Customer's Needs

By F. M. BANKS*

Rapid growth, inflation, and higher costs all along the line posed many problems for the Southern California Gas Company in the period from 1949 to 1959. One of the chief methods employed by the company to maintain and improve its profit picture was various modifications in the design and application of its rates.

EVERY organization in our country is faced today with the problem of maintaining and improving profit margins in a highly competitive economy. This is true whether the organization is a government, a corporation, or a simple family unit. While superficially a regulated monopoly, the gas utilities are not exempt from this problem. Like most other companies, we in Southern California Gas Company have been and continue to be faced with the compound problem of a rapidly growing system requiring major physical additions, during a period of continuous inflation affecting both the cost of facilities and the cost of our product.

We are a great deal like the man and his wife who in 1949 had only one child and lived in a small two-bedroom house. Each year since, they have had a new child, and the cost of adding new rooms for the growing family has increased so that a new bedroom in 1959 costs about one-fourth as much as the whole house was worth in 1949. Operating expenses for food, clothing, utilities, transportation, and taxes have all increased by a much greater percentage than the actual rate of use.

Obviously, it would be difficult enough for this man with eleven children to make ends meet under stable price conditions, but he must be a manager par excellence to keep his head above water in a period of inflation.

*President and general manager, Southern California Gas Company, Los Angeles, California. For additional personal note, see "Pages with the Editors."

What Ten Years Have Done

IN 1949, the Southern California Gas Company served about 1.1 million customers while now, ten years later, more than 1,660,000 customers are on our lines. The average investment of somewhat over $200 per customer in 1949 has risen to nearly $300 in 1959. The added investment per added customer during this ten years has been nearly $500.

In 1949, out-of-state gas supplies were still new to us and formed a relatively small portion of our total supply. Since that time our dependency on out-of-state gas has grown to the point where approximately three-quarters of our total supply is imported to California. Finally, the cost of out-of-state gas has increased more than 100 per cent in the past ten years.

It is obvious, in these circumstances, that the selling price of gas had to increase substantially. The question is—what has been and is being done to lessen the impact of growth and inflation, to stabilize earnings, to improve load factor, and to maintain and increase our dividends in the face of these dynamic changes? While our companies, in common with most gas utilities, have made numerous operating improvements, I propose to discuss here one phase of this management function in particular —changes in rate design and application.

Rate Changes

ONE of the most important rate structure changes that we have made in recent years has been the enlargement of the fixed charge of our general service schedules. About 99 per cent of our customers are residential or small commercial users.

For each one of these customers connected to our lines, we incur annual fixed charges—depreciation, return, and taxes on the service, meter set assembly, meter and regulator, and for meter reading, billing, and collecting, of nearly $40 per year —and this is before we deliver the customer one cubic foot of gas. Historically, the gas industry has been a low minimum charge industry, and the Southern California Gas Company has been in pattern. When there is a large variation in the amount of service rendered, which is, of course, another principal characteristic of our business, the make-up of the customer charge contributes significantly to fluctuations in revenues and net income. How much better off we would be, for example, if most of the gas bill could be reflected in the monthly fixed charge, as it is, for example, in the telephone industry.

TEN YEARS AGO, the minimum charge portion of the rates applicable to most of our customers was 90 cents for the first 200 cubic feet of usage. Currently this minimum charge ranges from about $1.90 to $2.30 per month for the first 200 cubic feet of usage. Although this is still under the $3 plus per month average customer costs, it is a king-sized step in the right direction. The value of this higher fixed charge in stabilizing earnings was vividly illustrated by what happened in our company in 1958, which was much warmer than usual.

In a normal year, the average customer taking firm natural gas service would use about 103,000 cubic feet of gas. Because of the extremely warm weather during the past year, he used only 90,000 cubic feet. If the former 90 cents per month

minimum charge plus a higher rate per Mcf had been in effect rather than the present minimums with a lower Mcf rate, our gross revenues in 1958 would have been reduced more than $2 million, and our net for return would have been reduced by about a quarter of one per cent.

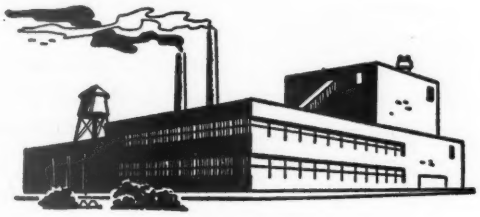
ANOTHER rate innovation placed in effect last year was a further increase of 20 cents in the fixed charge coupled with a discount of 25 cents per month for customers taking service for more than a year at a given location. Since about three-fourths of our customers fall in this class, the net result is an additional charge of $3 for the first year to new or transient customers. The result is a relatively painless procedure of collecting turn-on and turn-off costs from the customer who is specifically responsible for their occurrence. In a typical year, we ordinarily add 60,000 or 70,000 new customers. Another 400,000-odd customers move from one location to another. Many of these move twice in a single year. We estimate that about $1.5 million is being collected annually from such customers, an amount which would otherwise have to be paid by all customers through higher rates.

A NUMBER OF important changes have been made in our rates to very large industrial customers, designed particularly to build sales and improve load factors. In prior years, these larger customers were served on a dump basis at a relatively low rate. In warm years, or if for any reason gas was in excess supply, we were vulnerable to the loss of substantial business to fuel oil. On the other hand, in a cold season, there was the problem of equitably allocating the lesser volumes of available gas among the larger interruptible customers, most of whom were major steam-electric plants.

Some Rate Modifications

IN 1957, we put into effect a new schedule providing for term contracts under which the priority of service was related both to the customer's contract volume and the length of contract. Minimum take-or-pay volumes were required, equal to approximately 80 per cent of the contract amounts in the summer and 50 per cent in the winter.

Finally, the summer rate was blocked to reflect load factor related to the contract volume. While all these provisions resulted in a fairly complicated rate schedule, it has really paid off dollarwise during the last eighteen months, when we would otherwise have lost large volumes of gas to cheap fuel oil. These longer-term contracts, by assuring us of market outlets for specific volumes of gas for specific



periods, have placed us in a much improved position to acquire major new out-of-state gas supplies, such as are now planned for delivery from the Transwestern and Rock Springs projects. In this manner we are able to further anticipate our firm market requirements, and at the same time take care of current industrial needs, particularly during days of heavy smog when the local air pollution control authorities require all industrial plants to burn gas to the extent supplies are available.

ANOTHER development, while much less important from a volumetric viewpoint, has captured many more columns of news space. I refer to a new rate put into effect last year covering the sale of gas for street and outdoor lighting. As you all know, there has been a great resurgence of interest in gaslights across the entire nation.

In southern California a special rate was developed for this purpose, and a promotional program was set up, with the result that we and our affiliate, Southern Counties Gas Company, have added 14,000 gaslights to our lines.

Although we do not expect to see the gaslight replace the electric light, it does provide us with a high load factor, attention-getting, gas-using appliance which opens the door to other gas sales.

Load Builder Par Excellence

AT the end of 1957, a new provision was included in all of our rates which has so far turned out to be one of the best load-building incentives we have ever devised. This provision established a 25 per cent discount on gas usage for direct gas-fired air-conditioning equipment during our off-peak months of May through October.

For a home large enough for a three-ton air conditioner, the annual space-heating requirements in our service area are about 80,000 cubic feet of gas, of which 90 per cent is used in the six winter months and about 10 per cent during the summer months—a highly unbalanced load. With an all-year gas air conditioner, the annual usage is increased by about 90,000 cubic feet with more than 90 per cent of this use in the six summer months. Air conditioning not only doubles the total usage for a given customer; it converts a very poor load factor to a very good one—even to the extent of having a slight peak during the normally off-peak summer season. The competition for this load is very keen, however, and special incentives such as the 25 per cent discount are needed to develop sales.

WE are so enthused with the results obtained in the residential and small commercial field, that we are now planning to develop special rates for gas-energized air-conditioning equipment of all types, including the large tonnage units in office, commercial, and industrial buildings which are currently served on relatively low interruptible schedules. For most customers, no added capital investment is required to serve the air-conditioning load. Billing costs are almost the same, while customer service costs increase only moderately. In fact, the only significant incremental expense is the commodity cost of the gas itself. Under the circumstances, we believe a minimum rate, approximating the cost of gas, is justified to help us capitalize the opportunities for load building and load

factor improvement obtainable from air-conditioning business.

Our friend with the eleven children has been looking at this problem of load factor, too. Three of the kids have worn the same shirts, and diapers cover three or four crops of babies before they wear out. Bunk beds hold down the need for more bedrooms. I think after watching him manage, that we ought to have him join us to help solve our problems, for I am sure we will still be adding customers long after he is through adding children.

AGA 1959 CONVENTION TIMETABLE, CHICAGO, ILLINOIS

Sunday, October 4th

9.00 a.m. Exhibit: New Tools for Growth and Service (till 6 p.m.).
1.00 p.m. Registration, Normandie Lounge, Conrad Hilton Hotel (till 6 p.m.)

Monday, October 5th

8.00 a.m. Registration, Normandie Lounge, Conrad Hilton Hotel (till 5 p.m.).
9.45 a.m. First General Session, Grand Ballroom, Conrad Hilton Hotel.
12.30 p.m. Luncheon for Gas Industry Management, Williford Room, Conrad Hilton Hotel.
2.15 p.m. Home Service Round Table, Beverly Room, Conrad Hilton Hotel.
2.30 p.m. Exhibit: New Tools for Growth and Service (till 6 p.m.).
2.45 p.m. General Management Section, Waldorf Ballroom, Conrad Hilton Hotel.
Operating Section, Williford Room, Conrad Hilton Hotel.
8.30 p.m. President's Reception and Dance, Grand Ballroom, Conrad Hilton Hotel.

Tuesday, October 6th

8.00 a.m. Home Service Breakfast, Williford Room, Conrad Hilton Hotel.
9.00 a.m. Registration, Normandie Lounge, Conrad Hilton Hotel (till 5 p.m.).
9.45 a.m. Second General Session, Grand Ballroom, Conrad Hilton Hotel.
12.30 p.m. Exhibit (till 6 p.m.).
2.00 p.m. Demonstration (till 6 p.m.). } New Tools for Growth and Service.
12.30 p.m. Accounting Section Luncheon Meeting, Upper Tower, Conrad Hilton Hotel.
1.00 p.m. Ladies' Luncheon and Style Show, Terrace Casino, Morrison Hotel.
2.00 p.m. Industrial and Commercial Gas Section and Residential Gas Section—Joint Meeting—Williford Room, Conrad Hilton Hotel.

Wednesday, October 7th

9.00 a.m. Registration, Normandie Lounge, Conrad Hilton Hotel (till 12 noon).
9.45 a.m. Third General Session, Grand Ballroom, Conrad Hilton Hotel.
11.30 a.m. Executive Session.
12.30 p.m. "New Horizons for Sales" Luncheon Meeting, Grand Ballroom, Conrad Hilton Hotel.
3.00 p.m. Exhibit: New Tools for Growth and Service (till 6 p.m.).

Thursday, October 8th

9.00 a.m. Exhibit: New Tools for Growth and Service (till 12 noon).

The Gas Industry's Contribution to the National Economy

GAS DOES IT
Advertisement
NEW LOW GAS RATE
To be put into effect by Aug 20
Presented by YOUR LOCAL GAS COMPANY
New Gas Rates
You do it better with GAS—

By HAROLD MASSEY*

Managing Director, Gas Appliance Manufacturers Association

With total gross assets now totaling $22 billion—or more than double what it was less than a decade ago—the natural gas utility and pipeline industries are firmly established as major contributions to the economy and social welfare of the United States.

EVERYONE seems to be more housing-conscious these days. The influence of the typical American home has reached even into the realm of international politics—literally.

This was apparent in the news reports of the discussion between Vice President Richard M. Nixon and Nikita S. Khrushchev, chairman of the Council of Ministers of the U.S.S.R., as they toured the all-gas kitchen of a model home at the American National Exhibition in Moscow's Sokolniki Park.

"You Americans expect that the Soviet people will be amazed," Mr. Khrushchev said. "It is not so. We have all these things in our new apartments."

To which Mr. Nixon replied, "We do not claim to astonish the Soviet people. We hope to show our diversity and our right to choose. We do not wish to have all decisions made at the top by government officials who say that all homes should be built the same way."

Whole World Listened

IN this way the most dramatic and probably the most important public debate of our generation began. Suddenly the

*For additional personal note, see "Pages with the Editors."

attention of the whole world was focused on events taking place in a model American gas kitchen on display in the very heart of the Communist dictatorships.

The repercussions on international affairs of what the Soviet chairman and the U. S. Vice President said in public and in private cannot be fully evaluated as yet. Let's leave that to the historians.

As a member of this nation's burgeoning gas industry, though, I find the now famous "kitchen debate" stimulating for yet another reason. I cannot help wondering what started it. What did Mr. Khrushchev see in that display that prompted him to rush so vehemently to the defense of Russian enterprise? Why did he, right up to the day the exhibition closed, make repeated critical remarks about our having displayed too many home appliances?

He said the Russian people were not interested in seeing such "gadetry." But weren't they? The comments of those who visited the exhibition revealed that this phase of the show was, if not the most popular, certainly one of the top attractions.

Through Others' Eyes

SOMETIMES it takes a foreigner to make us see what is really going on here at home. There is a lot of truth, you know, in that old proverb about not seeing the forest for the trees.

One of the very great advantages of being in close touch with the affairs of the Gas Appliance Manufacturers Association is the opportunity it has given me to stand off occasionally and take a look at the overall scene. It is a good thing to do. I think everyone ought to take time once in a while to look about the world surrounding him.

I assure you that what you will see will be rewarding, inspiring, and challenging. You will learn, for example, why it is that the things we take for granted every day of our lives are met with sheer disbelief by the peoples of other lands. You will see why the selection of a gas kitchen for display in the American National Exhibition was so appropriate. And why it created such a stir.

You will learn how much of an impact the production, transmission, distribution, and utilization of gas has had on the *economy* of our nation. And, perhaps even more important, you will discover how mighty a contribution this industry is making to the *social* welfare of the nation.

Fifth Largest Industry

THE gas industry now is recognized as one of the nation's fastest-growing industries. On the basis of plant investment, it has moved from sixth to fifth place among America's largest industries. The gas utility and pipeline industry alone has gross assets now totaling approximately $22 billion. That is double the $10.9 billion estimated in 1951.

The industry now serves 40,492,000 homes, including 8.7 million liquefied petroleum customers. Back in 1951 the overall total was 31.7 million. Each year some 900,000 new customers are added to the total.

Natural gas and natural gas liquids now supply 29.7 per cent of the nation's energy requirements. It was only 11.4 per cent in 1940.

Every day of the year gas equipment is used in the preparation of more than 250 million meals in 35 million American homes and 66 million meals in public and

institutional eating places. This means that most American families rely on gas to handle the costliest item in the average family budget. And, therefore, gas is a vital factor in the diet of the world's best-fed nation.

This industry's further contribution to public health and welfare is evidenced by the use of gas water-heating facilities in nearly 22 million homes.

Comfort Leader

More than 40 million pieces of gas-heating equipment make this industry the leading purveyor of comfort, not only in the majority of homes but also in countless commercial and industrial establishments.

Besides the fact that there now are more than 103 million gas appliances in use, including 3.5 million gas refrigerators, half a million gas incinerators, and 400,000 gas clothes dryers, there are other proofs of this industry's contribution to the progress and well-being of America that most persons closely allied with this industry overlook until they back away for a really broad view.

GAMA President Edward A. Norman cited many of these contributions in his recent address before the American Gas Association's annual convention in Chicago.

He referred to the biggest bank building in the South, the 40-story Republic National Bank, and the Statler-Hilton 1,001-room hotel, both in Dallas, as being completely gas air-conditioned and reliant upon gas for all other service functions. Nor are these two examples any longer unique in the commercial construction field. He identified the biggest airport in the world, Idlewild, in New York, as gas-equipped for all purposes.

Serves National Defense

The Great Lakes and San Diego Naval Training stations, he pointed out, serve 60,000 gas-cooked meals daily. In fact, all major military establishments now are big gas customers, and the three huge main kitchens of the Pentagon are no exception.

The famous Washingtonian Motel, near the nation's capital, is a standout gas installation, as are many other distinguished motel developments throughout the country.

THE GAS INDUSTRY'S PATTERN OF GROWTH

	*1951**	*1958**
Gross Assets (of Utility and Pipeline Companies)	$10,900,000,000	$21,000,000,000**
Employees	178,000	206,200**
Customers (Utility and LP Gas)	31,700,000	40,492,000**
Appliances in Use		
Domestic Ranges	27,425,000	33,000,000**
Automatic Water Heaters	15,400,000	21,022,200***
Central Heating Equipment	4,634,000	10,798,100****
Refrigerators	N.A.	3,430,000****
Household Incinerators	N.A.	465,000****
Clothes Dryers, Direct Heating Equipment, and Other	N.A.	33,284,700****
TOTAL		102,000,000

* As of December 31st.

Sources, **American Gas Association; ***"Gas Heat and Comfort Cooling"; ****Gas Appliance Manufacturers Association.

The ultramodern Atlantic Research Building, in Washington, is going to use gas for air conditioning because the success of many delicate scientific experiments will depend on properly controlled atmospheres.

Gas heavy-duty heating equipment is beginning to have a powerful effect on employee good will and labor efficiency in many heretofore hard-to-heat industrial plants.

The mammoth Alamo Stadium at San Antonio and the Milwaukee Braves' County Stadium are just two examples of the many modern arenas and ball parks now either equipped or planning to install gas facilities for player and patron comfort.

A few years ago, when the Civil Defense authorities in Chicago staged an evacuation of the city in a simulated A-bomb attack, gas equipment was wheeled into action to help feed thousands of "evacuees" and provide hot water for sanitary purposes.

A-bomb Test

SHORTLY after that, an actual A-bomb explosion was set off on Yucca Flats in Nevada. One of the purposes of the detonation was to find out how various utility services and appliances would make out under real attack conditions. Gas meters, mains, and home equipment survived practically intact, while electric power lines in most of the attack area were torn down by the bomb impact.

In February of last year the East Ohio Gas Company was put to the supreme test when a wave of zero weather created a record demand for gas. The company distributed 1.6 billion cubic feet in a single day, as much as would ordinarily be sent out in the entire month. Every emergency technique known to the business was employed to get this spectacular job done. I refer to it, though, as Ned Norman did, as only one of the many examples of public service on the honor roll of the gas industry.

A single statistic on the growth of gas heating speaks volumes on the public's choice of fuels. In Chicago alone, the number of gas heat installations has risen from 30,000 to more than 300,000 in a little over ten years, despite a limitation order requiring the utility to get permission from the Illinois Commerce Commission when it wants to increase its heating clientele.

It is certainly no secret that gas is playing a prominent rôle in almost every phase of defense production, and has come closer than any other heat source to supplying the atmospheres needed to condition metals to the orbiting needs of space research.

Perhaps you did not know, though, that gas equipment figured in the construction of the Alternating Gradient Synchrotron at Brookhaven National Laboratory near New York, which by 1960 will give American science its mightiest atom-smashing machine.

Serves Industry, Too

CHECK a survey made by GAMA's public relations staff on the leading companies in each of America's top hundred industries, and you will find that there are many additions to the old estimate that there are 26,000 uses of gas in industry. All of the respondents use gas as a mass heating, heat treating, or pre-

cision tool; and in their laboratories where new products and new processes evolve, gas is virtually indispensable.

A recent GAMA study has also revealed that there are more than 15,000 ranges in the home economics classrooms of the nation's major public school systems, and a fraction over 83 per cent of them are gas-operated. Why such a preponderance of gas ranges? The educators said, in effect, most of the children's homes have gas ranges and it makes sense to teach them on the same kind of equipment they will be using at home.

Sale of Gold Star Gas Ranges Gets Impetus

THERE are definite signs, I am very pleased to report, that the Gold Star idea and all it implies is beginning to inspire the entire industry. This year, for the first time, the manufacturers of domestic ranges have joined in designating and promoting their top-quality lines with the Gold Star Award of the American Gas Association. Each range has 28 specified modern improvements and at least two other optional features. Although the first year of this program still has several months to go, the industry already is showing marked improvement in the number of sales and dollar volume.

THE conviction that the public will accept and pay for quality now is spreading to other segments of the gas appliance industry. The water-heater people have had some constructive meetings along this line. And the industry's heating divisions are giving favorable consideration to a general upgrading of products, planning and promotions, not only to enhance their own market outlook but also to meet competition head-on. Such moves also are contemplated by the gas dryer and incinerator divisions.

These can and should mean more than just the improvement of production and marketing standards. It can mean justifying a price structure that will permit earmarking of funds for promotion to assure continuation of this positive trend in our industry. Just as important, though, it will

provide the means to enable the gas industry to devote additional effort on research. It is encouraging to see this industry gaining skill in the use of the tools of research, acquiring the ability to interpret its findings, and making ready to produce what those findings show it must produce to meet the demands of the 1960's.

Bigger Areas to Heat

THERE is a big bulge on the horizon in the fact that three out of five workers in this country now own their own homes. And all available statistics show a steady movement toward four out of five.

This will give millions of new home owners the freedom of choice of equipment they could not enjoy as tenants. Furthermore, while it took fifty years for the average income families in this nation to expand their homes from less than one room per person to one-and-a-half rooms per person in the typical new dwelling, it now looks as though an advance to two rooms per person is in the cards for the 1960's.

Applied to the nation's 1959 housing inventory, the two rooms per person formula would mean 33 per cent more cubic footage to heat (and cool) and comparably larger needs for cooking, laundering, and waste disposal facilities, as well as the equipment required for personal and household hygiene.

In addition to these potentials, we see the possibility of a considerable stepping up of the entire replacement market for all types of gas equipment. With all their virtues of endurance, there are millions of appliances that are now in their tenth or even twentieth year of service. More than ever we are concentrating our promotional fire on selling the advantages of updated living and updated equipment.

Other signs of the times include such developments as the two-furnace and two-boiler home market; a wide-open market for year-round gas air conditioning heralded by more and more announcements of commercial, institutional, and other large-scale installations; a vastly improved gas refrigerator outlook; concurrent advances in hot-water-using equipment in kitchens, laundries, and bathrooms, with their consequent effect on water heater sales, and encouraging approval of gas incinerators by air pollution, health, and municipal officials.

For Senior Citizens

WE are getting a good deal of satisfaction also from the way housing developments for senior citizens have been working out in favor of gas. As you know, a number of misguided housing officials in the past have advocated complete electrification—even for cooking and heating—for senior citizen units of housing developments built with public funds. This, apparently, resulted from the circulation of a false theory that gas is more "hazardous."

These community planners completely overlooked the fact that gas has been proven safe time after time in such places as the home economics classrooms of the New York Lighthouse school for the blind, where safety is of paramount importance. Also obviously forgotten is the fact that the vast majority of the senior citizens for whom the housing units are planned have cooked with gas and used the fuel for other purposes all their lives.

You can readily understand our pride

and satisfaction, then, on learning that this attitude also has changed. We have found numerous large cities that have developed, or are planning, housing for the aged in which gas is used for one or more purposes. And the number is growing steadily.

As to the commercial and industrial equipment fields, too, there is good reason to look forward to substantial progress. Occasionally, we hear of certain defections from the ranks of commercial gas cooking, but the latest sales figures of the GAMA commercial division show a sizable increase over last year in the country as a whole.

In the industrial category, hardly a day passes without at least one announcement of a new development made possible by gas, revolutionizing the processing of one or more items of consumer goods.

Several years ago the GAMA Industrial Division adopted a Code of Ethics which symbolizes the integrity and performance of its products. The Signer Seal of the Code of Ethics has assumed the proportions of an endorsement of such products and is recognized as such by many industrial executives and municipal inspectors.

Business Outlook

GAMA's most recent semiannual "General Business Outlook" report bears out the gas industry's optimism for the immediate as well as long-range future. The substantial sales gains reported during the first six months of 1959, in fact, have far exceeded the manufacturers' earlier predictions straight across the board. As a result, the consensus of opinion now is that the final total of 1959 sales will exceed those of 1958 by 10 per cent, and the 1960 unit sales will be another 3.8 per cent above the current year's.

Even though the rate of sales increase is expected to slow down somewhat in the concluding months of this year, the 1959 total sales of built-in gas ranges, auto-

GAS APPLIANCE BUSINESS OUTLOOK

	1958	*1959**	*Per Cent Change*	*1960**	*Per Cent Change From 1959*
Domestic Gas Ranges					
Free Standing	1,665,000	1,714,300	+ 3.0	1,756,200	+ 2.4
Built-ins	231,000	340,400	+47.4	399,400	+17.3
TOTAL	1,896,000	2,054,700	+ 8.4	2,155,600	+ 4.9
Automatic Water Heaters	2,673,400	3,030,700	+13.4	3,076,600	+ 1.5
Gas Central Heating Equipment					
Warm-air Furnaces	853,700	1,062,000	+24.4	1,117,400	+ 5.2
Boilers	123,200	136,600	+10.9	144,100	+ 5.5
Conversion Burners	148,200	119,000	—19.7	113,600	— 4.5
TOTAL	1,125,100	1,317,600	+17.1	1,375,100	+ 4.4
Vented Recessed Wall Heaters	389,000	427,300	+ 9.8	440,800	+ 3.2
Gas Floor Furnaces	97,500	96,400	— 1.1	88,300	— 8.4
Direct Heating Equipment	1,395,900	1,421,200	+ 1.8	1,529,600	+ 7.6
Gas Incinerators	51,800	40,400	—22.0	44,300	+ 9.7
Gas-fired Unit Heaters	115,000	124,500	+ 8.3	131,000	+ 5.2
Gas Duct Furnaces	18,800	21,700	+15.4	23,700	+ 9.2
Commercial Gas Ranges	30,600	34,200	+11.8	32,300	— 5.6

*Consensus of manufacturers polled.

matic gas water heaters, gas warm-air furnaces, gas boilers, and gas-vented recessed wall heaters may very well reach new all-time peaks.

The industry's growing optimism is demonstrated in a comparison of the predictions reported by GAMA at the end of 1958 and mid-1959. In the earlier report, gas range manufacturers felt that 1959 sales would approximate 1,883,100 units. Now, with a relatively active first half a matter of record, the consensus is that the current year's gas range sales will total 2,054,700 units. They also expect this trend will continue through 1960, with sales reaching 2,155,600 units that year.

If all the manufacturers produce and sell the quantities they individually anticipate, an even more optimistic prediction will be in order and the industry's 1960 total may go as high as 2,276,700 ranges.

WHILE these estimates indicate a busy and prosperous future ahead for this industry, we also realize they portend the greatest challenge we have ever faced. The predictions will be meaningless unless every manufacturer and every utility and every pipeline company steels itself to meet the tremendous demands that lie ahead.

I am firmly convinced, however, that we are equal to the challenge and that we will be ready to make the effort and sacrifices required to win the prize of continued public acceptance.

"WHILE there is a great deal about economics that the greatest scholars do not know, yet enough is known, if applied, to start us on the way to full employment.

"One of the first steps must be to rid ourselves of the childish notion that the way to increase employment is to raise the wages of labor. . . .

"The one absolutely certain way to insure that there will always be unemployment is to force wages upward faster than the productivity per worker increases.

"The argument that higher wages enable workers to buy more of their own products, and that this would require more workers, simply does not figure out.

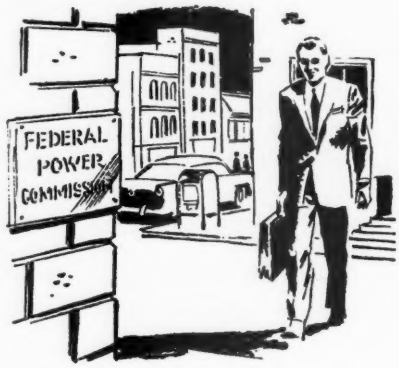
"To begin with, wage earners and their families are a minority of the consumers. Forcing wages up faster than the product per worker increases would increase the cost of producing their product. The consuming majority, having to pay the higher cost, without any increase in their incomes, would buy fewer products. Reducing the purchasing power of the majority would more than offset the increase in the purchasing power of the minority. . . .

"The cure for unemployment doesn't just happen. There must be an increase in the number of competent job makers, a decrease in the number of job seekers, or both."

—THOMAS NIXON CARVER,
Columnist.

The Federal Power Commission and the Economic Analyst

By ROBERT B. ECKLES*



Does the Federal Power Commission need a balance wheel among its many specialists to look after the interests of the national economy? Surely regulation needs some consistent direction, especially in the area of the gas industry. Decisions might well be modified in the light of an analysis of what their long-range effects would mean to the public.

IT would be hard to find anyone who is overly pleased with the regulation now given the natural gas industry by the Federal Power Commission. This general statement would probably be heartily supported by members of the commission, the commission staff, the distributors or public utilities, the pipeline managements, and the producers of natural gas. Each group would, and assuredly does, have each its collective reasons for disliking the out-of-jointness that characterizes federal regulation. Each probably would differ from the other on what was wrong, and on what steps should be taken to put everything right. Discontent with federal regulation of this industry has as many faces as there are interests, each looking at the picture from its own vantage point and seeing it in almost totally different colors.

Only one of the aspects of regulation that seems to irritate and create discord can be discussed here. That is the problem of giving sufficient consideration to the economics of the industry seen in the light of regulatory practices. Under the provisions of the Natural Gas Act the Federal Power Commission is charged with the duty of protecting the interest of the general public, the consumers, when natural gas is sold for resale in interstate commerce. The production of natural gas, its transportation, and its distribution are regulated according to well-established public utility concepts and laws.

A PROPER question to ask is whether or not the methods and practices of the commission have not ended in a paradoxical situation. Have they brought about a state of affairs in which the industry and in the long run the general public has not been harmed by the very regulations designed to protect their interests? No one

*Project director, natural gas history project, Indiana Historical Society, Indianapolis, Indiana. For additional personal note, see "Pages with the Editors."

can contend for a minute that any harmful result of the commission's procedures has been purposeful or anything but the result of fortuitous circumstances. It would be hard to find a more devoted or hard-working group of federal employees than those of the Federal Power Commission. Their willingness to carry on under handicaps of lack of trained personnel and sufficient staff inspires nothing but the highest praise for their efforts.

WHAT is here brought into question are the efforts themselves. Have they been those that have neglected the most basic interests of the people and the industry presumed to serve them? When the work of the major specialist groups within the commission is examined the first impression is that each has done well the general task assigned it.

These divisions are the engineering, the accounting, the judicial, and the legal sections. These terms do not, of course, conform to the titles given these general divisions within the commission. They are called the commissioners, office of secretary, office of hearing examiners, chief engineer, office of general counsel, office of chief accountant, office of administration, bureau of rates and gas certificates, and so on. But the dividing of the work does fall into the categories first mentioned because it describes accurately the special skills employed by the commission. Each general specialty demands the absorbing professional work of a staff of trained men, each selected specially for his particular ability in his chosen area.[1]

[1] See "Reorganization of the Federal Power Commission," by Daniel M. Ogden, Jr. PUBLIC UTILITIES FORTNIGHTLY, Vol. 61, No. 11; May 22, 1958, pp. 737-751. *N.B.* Footnote cited on p. 751.

Professional Experts in FPC

THE Federal Power Commission is an agency of experts. Its Civil Service list, and the job descriptions that appear there assure the general public that the men who do the work and make the decisions are specialists. The problem that is raised by their actions and decisions is not one of their ability to perform as specialists. It is rather one that their actions as specialists have narrowed their collective vision to the point where they are myopic in looking at the interests of the national economy. It is from their unquestioned expertise that unfortunate trends in regulation may come, or are now present, according to the point of view that one may take. It very definitely has led to severe criticism of current regulation.

Indispensable Engineers

THE professional skill of the engineer has been used by the commission to insure the public that the supply of natural gas is guaranteed and delivered under safe and scientifically acceptable conditions. When a certificate is to be approved for new construction of a pipeline, for additional horsepower installation, for conformation of engineering requirements for strength of materials and construction, the engineers go to work. It is they who assure their colleagues that the facilities to be certificated or in other ways to be approved meet every specification of the engineering profession. They must see to it that pipelines are not built that will fail in technical performance to do what their designs call for them to do. They must assure the public that there is ample natural gas at hand to meet the market needs of the customers at the time of certification, and that additional reserves are truly at

hand and usable when they are considered.

The engineers' work is fundamental to most actions taken by their colleagues. They pass on the physical fact and the feasibility of expanding, construction, and the machinery of pipeline operation. Theirs is a task calling for the highest training and specialization. Natural gas engineering and pipeline construction and operation are special branches of the civil, the geological, and mechanical engineering specialties.

Figure and Fact Men

THE next group of specialists in this agency makes up the battalions of accountants and rate men. Theirs is the very hard task of answering two most vital questions about a company. The first question is whether or not the company's financial organization from original cost to gross income is sound. The second question relates to the correct determination of rates to be charged customers buying gas from public utilities. Since the agency has adopted a principle for rate determination, the prudent investment principle, and has had it approved by the courts, it must make its rate findings in accord with it.

The accountants not only have the duty of accurately reporting such items as cost and depreciation, but also that of fixing the rate of return. The accountant's specialty is reporting matters of record under most conditions. Here he is asked to do something essentially outside the field of his basic training. He ought not to be required to say whether or not a rate is adequate or proper. He ought to be asked to state only what would be the results of a course of action taken under set circumstances. The economist rather than the record keeper or reporter of facts should be required to determine such matters as rates based on future costs or earnings.

SPECIFICALLY, there can be some valid objections to the accountant's insistence upon the earnings-price ratio as a true indication of profitability. What is of vital concern are the future earnings capacity and trends of industrial performance.

Earnings-price ratio is based on market speculation in securities, on supply and demand of security markets, and on corporation net worth, mostly of nonutility corporations. The relationship that exists between prices of securities of nonutilities and what should be allowed on earnings of specific, regulated companies is, perhaps, more a matter for the economist than it is for the record keeper.

WITH THE ENGINEER the accountant must work in the field gathering statistics and facts. He must protect the public of consumer and investors through his investigations into expenditures of the natural gas companies. In the performance of this duty he is able to require companies to follow a uniform system of reporting their accounts. Since he is the expert having the last word on the part of the commission about rates of return and allowances for costs he is the financial and economic keystone of the specialist groups. The industry in the economic sense depends upon the accountant's good judgment, his technical knowledge, and his sense of justice.

Lawyers Must Be Versatile

FINAL shape to the commission's business is given by the professional lawyers. They steer causes through hearings where they represent the commission. There they meet other lawyers representing petitioners and interveners. The hearing examiners are lawyers who after listening to arguments and reviewing evidence write opinions for the commission's approval.

The commissioners themselves usually are lawyers. It would be difficult to carry on properly if they were not. After all the hearings, the problems of public utility regulation, and the right of appeal to the United States circuit courts and Supreme Court of interested parties, mold the conduct of business into a legal affair.

From the beginning to the end of any vital piece of business the lawyers are consulted, must write the case, the opinions, and the decisions. They must be not only first-rate lawyers but experts in the legal and technical problems of natural gas, water, and electricity regulation. There is a specialist corps of attorneys serving in the commission who have become masters at conducting business within the technical and highly specialized regulation of the commission. Theirs is a skill acquired painfully over the years.

Elite Corps—The Examiners

A CORPS of specialists, the examiners, is required to know both law and the problems of the natural gas industry particularly. The examiners are required to digest hundreds of thousands of words making, at the end of their readings, a short, cogent recommendation to the commission for final decision. All too frequently these hard-working specialists write recommendations that become the final judgments of the commission. They are close to the facts, know the parties, and are presumed able to interpret accurately the true interests of all parties. Theirs is usually a training in public utility law or administrative law and only occasionally one that includes economics or engineering.

At the head of the agency's officials and possessing final authority are the five commissioners. They must weigh every decision made by the staff, and must speak their minds in the end after all parties to a cause have been heard. It is undeniable that their workdays are more than filled with commission problems. They are, in the best sense of the word, held in thrall by the staff. Without the information and services of the staff they could not move an inch toward reaching equitable decisions. The experts of the staff work toward the proper goal of supplying them with adequate information properly organized and well-considered.

At first glance it might appear that the combination of the professional skills of the engineer, the accountant, and the lawyer would amalgamate in such a way that regulation would be farsighted, in the interests of the general public, and fair in its balanced consideration of the rights of all the parties having business before it. It is suggested that this cannot be and is not the case in respect to the broad, overall consideration of the economic conditions of the natural gas industry.

Broad Viewpoint on Actions Needed

NOWHERE in the proceedings before the commission is there anyone assigned

the important task of looking at or considering the broad economic effects of the commission's actions. It is true that a good look is taken at the rights of coal dealers, or the protests of railroads hauling coal. A good look is taken at the costs of production and the price the consumer ought to pay for natural gas. It is likewise true that the costs of operation are carefully calculated and that the applications of public utility regulatory concepts are efficiently brought to bear in determining the rates of return. The financial structure of each pipeline is gone over with a magnifying glass.

But each one of these investigations when added with others has failed to bring a total that represents the sum of the parts. Perhaps the trouble lies in an historic devotion to one or two rigid interpretations of what the Natural Gas Act means. Or it may lie in the devotion of the staff to certain clearly defined principles of public utility regulation, to a specific philosophy of serving the public best by serving the household consumer first.

Big Time Lags in Decisions Change Conditions

PERHAPS the need for an examination of the economic effects of commission procedure on actual operations is best illustrated in the frequently occurring situation created by the time lag in handing down decisions. Since the burden imposed by the Phillips decision in 1954,[2] it is not unusual for the examiner's opinion to come down three or four years after hearings have begun. In that time, it is quite possible for the market pattern and the economic status of the company involved to have changed radically. There is no way, at the moment at least, for the commission or for applicants before it to insist that the changing pattern of business be reflected in the decisions and opinions when they are arrived at years after the problems to be decided have been first presented.

From the profit-and-loss point of view, putting money under bond to be paid back on the chance of an examiner's decision, and with interest, may affect radically the dividend payments or the credit of the company. At worst, all the economist could do in this instance is to point out the unreality of decisions intended to control situations that no longer exist at the time of their announcement. Under the best of conditions he would be asked to adjust rates and payments with relation to current costs and operations. He might even be able to help to avoid the situation wherein a company with a rate case pending will introduce two or three new cases because the situation has changed so rapidly since the date of the original application.

Overspecialization Narrows Viewpoint

A BROAD outlook covering not only present operations but those best calculated to serve industry and the public can-

[2] Annual report of the Federal Power Commission for the year ending June 30, 1955. Annual Report No. 35. Washington, D. C. P. 12. Phillips Petroleum Co. *v.* State of Wisconsin et al. (1954) 374 US 672, 3 PUR3d 129, approving 100 PUR NS 506, 205 F2d 706.

not be found in the decisions of the commission.

It should be interjected at this point that this lack is not one coming from inefficiency or calculation. It comes rather from overspecialization. A good look at minute details by experts in three professions has not resulted in a broad outlook on the economic problems of the industry.

This need could be met in part by a continuing study of the changing economic conditions of the entire fuel and energy supply industries of the nation. Specific decisions on the natural gas industry might come closer to remedying existing faults with the results of this research made available.

It would be hard to find decisions, orders, and opinions that reflect a major concern with the problem of overcertification. One of the most important of economic considerations that ought to concern the staff and the commissioners is whether or not too many pipelines have been laid, or allowed to be built.

CONSERVATION of natural gas is not the thing we are talking about. It is the broad question of whether or not natural gas should have been put into service of the domestic space-heating customer as it has. Demand of the domestic consumer may have been satisfied, but what of the broad problem of serving national economic interests best by allocating natural gas to industries? Faced with the threat of industrial competition with other nations, who in some respects can produce more cheaply and technologically as efficiently as we, the question may well be asked why there has not been recently a thorough investigation of the economic end uses of natural gas with this grave situation in mind?

Economics Enters the Picture

AT the time of passing the Natural Gas Act there was no question that a federal agency would supervise the transmission of natural gas carried in interstate commerce. Public utility regulatory principles and concepts were properly applied to the supervision of gas at the distributor end of the pipeline. Since World War II, however, the Phillips decision, and many others, have led the commission to extend its supervision to the pricing of gas in the well itself.

A broad legal as well as an economic problem of the first order arises from this action. The commission is trying to keep prices of gas low for the superior type of user, the domestic space heater. And it does it by applying public utility concepts to the producing part of the business.

However, the process of producing natural gas does not fall easily into the patterns of operation foreseen by public utility conceptions. There is competition, oligopolistic competition to be sure, in spite of assertions to the contrary, in acquiring gas lands. There is the fact of hazard and chance in bringing in flowing wells not contemplated sufficiently by public utility regulation.

The commission staff has worked hard at trying to make these concepts apply to an economic situation foreign to them. On one occasion, illuminating in its demonstration of staff thinking, evidence that competition in producing

does exist was criticized as irrelevant by staff counsel to the proceedings because the Natural Gas Act assumed that it did not exist.[3]

> CONCERN WITH the right price of gas sold at the city gate and hence the price ultimately paid by the householder is a paramount consideration in the public utility theories applied by staff and commissioners. But specialization on the part of these men would seem to lead to neglect of the wider implications of their actions. For example, it was proposed that one major pipeline serve the natural gas requirements of New England. Demand for a second pipeline was considered with the result that at present two great pipeline systems supply this area with natural gas. However, neither one in 1956 was selling natural gas up to the certificated capacity of their respective systems. A failure to look thoroughly at the competition of fuel oil or even of coal for the industrial and domestic market of New England is back of this unsatisfactory situation.

New England's natural gas costs were and are relatively high because the certificated capacity of the pipelines was not sold. Had a broad market survey been the basis of the decision to approve a second pipeline, in short a broad look at the economics of the future of natural gas in the area, it might have been different.[4] A thorough consideration of immediate demand in an area or market does not guarantee that the best interests of either the area or of the industry are being served. One way of determining the economic problems of serving future and present markets would be to certificate only after a good elasticity of demand study of the market has been made. No such step, requiring the services of another expert, the economist, has ever been taken by the commission.

COULD the commission profit by adding to the expert skills it now employs those of market analysis, of economic advisers, of institutional economists? These men would have to serve as critics, advisers, and as prophets, pointing out the economic consequences of the actions of the engineers, the accountants, and the lawyers. Would their advice be taken, if it were given? The only place under the present procedure and within the framework of the commission's organization where economic advice on the consequences of actions might be used or made effective is at the commission level.

The commissioners are the only ones who have the opportunity to sit back and

[3] See Federal Power Commission hearings: On Matter of Champlin Oil & Refining Company, G-9277, G-9280; Western Natural Gas Company, G-9218; Sinclair Oil & Gas Company, G-9291 et al.; Tidewater Oil Company, G-13310 et al.; Pan American Petroleum Corporation, Continental Oil Company, G-9279; The Atlantic Refining Company, G-9283, G-9284; Humble Oil & Refining Company, G-9287; C. V. Lyman, G-9289; Vol. I L.C. pp. 1-146; Vol. II L.C. pp. 147-298; Vol. IV L.C. pp. 540-691; Vol. V L.C. pp. 692-806. January 7-15, 1958; Washington, D. C.

[4] See: for general problem annual report of the Federal Power Commission for the year ending June 30, 1953. Annual Report No. 32; pp. 131, 132, Washington, D. C. Also *Ibid.* Annual Report No. 33, pp. 145, 146; Re Tennessee Gas Transmission Co. (1950) 85 PUR NS 184, 9 FPC 262. Re Northeastern Gas Transmission Co. (1950) 9 FPC 271. Northeastern Gas Transmission Co. *v.* Federal Power Commission (CA3d 1952) 95 PUR NS 422, 195 F2d 872. Certiorari denied (1952)—US—. Algonquin Gas Transmission Co. *v.* Federal Power Commission (CA1st 1953) 98 PUR NS 462, 201 F2d 334.

look over the entire picture. And they have neither time nor opportunity to do very much of this. A reading of their decisions leaves one with the impression that they are forced to confine themselves to the particular problem facing them at the moment.

They undoubtedly would like to have time and opportunity to fit the immediate problem into the broader pattern of national economic policy and growth. But they obviously have neither the time to do it nor the information that would enable them to do it.

Could something constructive be accomplished by adding to the staff the expert services of professional economists?

The present commission has a few of these men as staff members. They are not generally used as economists, or at least their professional skills are not applied to the problems here discussed. It seems to be unwise to assert that the engineer, or the accountant, or the lawyer, no matter how well-read and how experienced, can have quite the point of view of the trained economist. The staff and members of the industry are forever working around and over a basic problem—where management begins and regulation stops. Perhaps common sense might indicate that the economist might help out both parties by showing where regulation hurts efficient management and vice versa. He might serve as the alarm bell, pointing out to both that the zeal for interpretation and application of public utility concepts has entered an area of unreality or that service to the public has been dangerously neglected for the interests of the shareholder.

THERE is no guaranty, of course, that the economist would function in this way. There is one very useful task he could perform, and might well limit his activities to it. He might present to the staff experts and applicants and interveners the economic analysis of the consequences of alternative decisions or proposals. For example, does service of an industrial area by two or more pipelines really answer a basic economic need? What does the rise in production cost truly mean to every type of consumer? Is the accounting practice and procedure of determining cost one that considers the economics of transmission, of production, or of distribution?

These matters might well be subjects for review of the staff economist.

SHOULD the present emphasis upon the expertise of the engineer, accountant, and the lawyer be thought adequate for most tasks, still room might be found for the economic analyst to review their joint efforts. The special services section of the commission might have the scope of its functions enlarged to encompass the criticisms and the point of view of the economist charged with looking over and beyond public utility regulatory practices and to the long-run consequences of the commission's decisions.

The commission has relied on a combination of three professional skills to produce a well-rounded regulatory pattern dedicated to the public good. It would seem that the overview of the results of putting together these skills does not provide for a kind of regulation that places in perspective some of the basic problems of loss or economic gain. Since the result of staff and commission decisions is based on a limited application of these particular skills it cannot be expected that they do or can include the professional services of the economist. He is needed somewhere in the regulatory picture in order that he may help bring into focus the joint efforts of the present professional regulators. His knowledge and his training ought to provide some corrective to the rather narrow and limited outlook made inevitable when his analytical abilities are not called for.

Adding It All Up

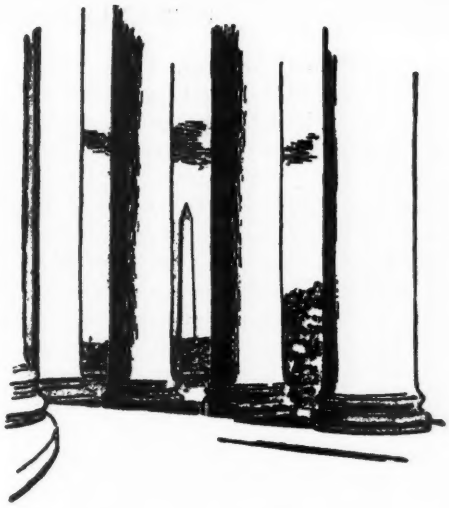
IT is not to be taken that the present rôle of any or all of the three professions in regulating natural gas is to be downgraded or changed essentially. To their functions, however, there might be added the supplementary services of the man who looks over and beyond the question of whether 6 per cent is the proper rate of return in an inflationary period, whether there is an ample supply of gas for a mere twenty years to supply a temporary market, or whether the legal precedents are in line with the proposal.

There should be added the insight and the point of view of the trained man who looks at present profit and loss, trends toward nationalization of resources, or the competitive position of natural gas when sold anywhere in competition with other energy fuels. He should point out the existence of competition in supply, in transmission, and in distribution. The recognition that this competition is an economic fact is vitally necessary. The services of the trained economist in this case might act as a deterrent to the wrangling and the ever-blossoming causes of discontent that presently plague the commission and those who have business with it.

"RESORT to government ownership is the refuge of the faintheartedd—of those who have no stomach for the coming economic battle with Communism, of those who have no confidence that the free enterprise system has the inherent strength to win the battle."

—KINSEY M. ROBINSON,
President, Washington Water Power Company.

Washington and the Utilities



Record Gas Construction OK'd by FPC

CONSTRUCTION of natural gas transmission facilities estimated to cost a record $763,037,000 was authorized by the Federal Power Commission during the twelve months ended June 30, 1959, Chairman Jerome K. Kuykendall reported last month. The previous 12-month record cost of $725,433,000 was set in the fiscal year 1951.

The commission issued 198 certificates during the 1959 fiscal year, authorizing nearly 4,900 miles of pipeline and approximately 614,000 horsepower in compressor units, Chairman Kuykendall said. The $763,037,000 estimated cost of the facilities, the largest amount for any fiscal year since the certificate provisions of the Natural Gas Act became effective in February of 1942, added more than 10 per cent to the certificated investment in facilities made by the nation's interstate pipeline companies through June 30, 1958.

The facilities authorized during the fiscal year 1959 would add nearly 3,250,000,000 cubic feet of daily delivery capacity to the nation's individual transmission systems, or nearly a billion cubic feet more than those approved during the preceding fiscal period. The statistics include only facilities authorized for interstate natural gas pipeline companies and do not cover certificates issued to independent producers.

The largest single authorization during the year was issued to Tennessee Gas Transmission Company, of Houston, Texas, for a substantial increase in its system capacity. The company, which operates from Texas to New England, was authorized to build 1,073 miles of 12- to 30-inch main-line loop, transmission, supply, and storage lateral lines, and a total of 104,250 horsepower in compressor stations. Estimated to cost more than $169 million, the project is designed to add new and additional gas reserves to Tennessee's system and increase the daily sales capacity of the company's system by 406 million cubic feet to meet increased requirements of existing customers.

Larger Projects Approved

MAJOR projects—those costing $700,000 or more each—accounted for nearly $730 million of the total construc-

tion cost during the year. These larger projects, covered by 58 certificates, will increase the daily delivery capacity of the individual transmission systems involved by more than 3,160,000,000 cubic feet of gas daily, including some capacity increases to receive additional gas supplies. They include about 4,600 miles of pipeline and nearly 602,000 compressor horsepower. The major projects are expected to benefit 140 cities of 50,000 population or more in 25 states and the District of Columbia, as well as numerous smaller communities.

Chairman Kuykendall noted that increasing numbers of the so-called "budget-type" applications are being filed, and that while the costs are included in the statistics, information is not currently available on the facilities, capacities, and benefits. Budget-type projects are designed to authorize the pipeline company to purchase new gas supplies adjacent to its system as the gas becomes available during a specified future period of time, usually a calendar year, and construct the necessary gathering facilities. The companies thus file a "blanket" application covering several projects, to be built as required, rather than make a series of separate small filings.

In the seventeen and a half years since the certificate provisions of the Natural Gas Act became effective, the FPC has authorized construction of nearly 85,000 miles of pipeline, more than 6,035,000 horsepower in compressor units, and miscellaneous appurtenant facilities at a total cost of about $7,212,000,000. Major facilities authorized in this period were designed to add more than 33 billion cubic feet of daily delivery capacity to the individual systems involved. However, the

SUMMARY OF CERTIFICATES AUTHORIZING CONSTRUCTION AND OPERATION OF NATURAL GAS FACILITIES ISSUED BY THE FEDERAL POWER COMMISSION BETWEEN FEBRUARY 7, 1942, AND JUNE 30, 1959

Fiscal Year Ending June 30th	*Number Of Certificates*	*Total Miles Of Lines*	*Total Additional Compressor Horsepower (1,000)*	*Estimated Cost ($1,000)*
1942[1]	1	20	—	$ 87
1943	4	51	3.6	1,643
1944	25	2,373	108.5	106,082
1945	43	1,181	66.6	34,171
1946	52	2,994	184.3	127,190
1947	132	5,369	360.4	273,190
1948	98	8,468	371.3	519,946
1949	91	7,045	436.3	566,203
1950	108	6,188	493.3	487,240
1951	173	8,695	736.1	725,433
1952	136	3,378	539.5	321,920
1953	133	7,123	582.7	723,038
1954	165	6,405	251.5	500,881
1955	140	4,927	259.0	465,324
1956	164	4,357	254.9	461,413
1957	174	6,787	350.0	615,966
1958	337	4,372	423.7	518,822
1959[2]	198	4,893	613.9	763,037

[1]From February 7, 1942.

[2]During this 12-month period projects costing $700,000 or more each accounted for the following: certificates—58; miles—4,636; compressor horsepower—602,000; estimated cost—$729,916,000.

quantity of this additional gas to be delivered to the nation's markets is actually somewhat lower because in some cases the gas is transported through facilities of two or more pipeline systems.

Panhandle Seeks $8,653,700 Wholesale Gas Rate Increase

PANHANDLE EASTERN PIPE LINE COMPANY, of Kansas City, Missouri, has filed a proposed $8,653,700, or 8 per cent, annual wholesale natural gas rate increase with the Federal Power Commission. The increase, which would affect 61 utility customers in Kansas, Missouri, Indiana, Illinois, Ohio, and Michigan, has a proposed effective date of October 26th. The increase would be in addition to one for $12,050,000 per year which Panhandle is now collecting subject to refund in another proceeding (Docket No. G-14755) and a prior increase for $7,134,000 (Docket No. G-2506) on which hearings have been completed and a decision issued by a presiding examiner.

In support of the new filing, Panhandle cited a proposed $8,995,600 annual increase by its subsidiary and supplier, Trunkline Gas Company, of Houston, Texas. Trunkline's increase has a proposed effective date of October 1st and is now under study by the FPC staff. Panhandle also cited increases in the cost of gas purchased from other suppliers and higher wages and taxes. The company is claiming a 7 per cent rate of return, the same as it is seeking in its pending rate case (G-14755), in lieu of the 5¾ per cent return allowed Panhandle in its last rate case decided by the commission.

Congressional Roundup

WITH the end of the first session of the 86th Congress, neither the administration nor the Democratic majority could claim any pronounced triumph with respect to legislation of special interest to public utilities. Over all, it seemed to be about a standoff. In this respect the Democrats in Congress did better than their overall record, with respect to what the White House wanted. In the field of general legislation, Washington observers estimated that the Democratic-controlled 86th Congress gave Ike about two-thirds of his requested legislation. This included the controversial labor union reform law, higher gasoline taxes, a modified housing bill, and higher interest on government savings bonds. But Ike failed to get his way on higher postage, civil rights, school construction financing, and long-term bond interest increases. Neither Congress nor the White House got what it wanted on farm legislation, in which the result was about a draw.

IN the more specialized field of legislation of interest to utilities, two of the main battles expected failed to take place. One of these concerned the perennial proposal to exempt the independent producers of natural gas from the full jurisdiction of the Federal Power Commission. This measure, twice passed and twice vetoed in former years in various forms, was again introduced by the chairman of the House Interstate and Foreign Commerce Committee, Representative Harris (Democrat, Arkansas). President Eisenhower was still ostensibly on record as being in favor of some such legislation, but neither the executive nor the congressional branch showed any interest in backing up what has become a political hot potato. The bill failed to move out of committee. The same fate awaited a number of other minor procedural measures to amend the Natural Gas Act introduced by Representative Harris at the request of the Federal Power Commission.

THE other measure on which some fireworks were expected was a resumption of the old Gore-Holifield Bill to put the government more actively in the business of building atomic power plants. But nothing materialized on this due to an understanding worked out between the Atomic Energy Commission and the congressional Joint Committee.

The most spectacular setback for the administration in this legislative area was the final enactment of the $1.2 billion Public Works Bill over two vetoes. In this, Congress rejected the President's insistence that there be "no new starts" and authorized small down-payment instalments on 67 new projects. This sum included funds to start Trinity power facilities in California ($2.4 million—where the President had hoped a partnership with private enterprise construction could have been inaugurated), the Burns Creek project in Idaho ($500,000), and western Iowa transmission facilities ($780,000).

These items represent quite a substantial breakthrough for federal power project promoters, even though the President might exercise his executive authority to freeze funds for those projects to which he objects. With the precedent already set by congressional approval, these projects will eventually be given additional appropriations unless political fortunes change in 1960.

IT will be recalled that the administration was only narrowly victorious in sustaining fiscal control over REA under the authority of the Secretary of Agriculture. His veto on this was sustained by only four votes in the House. Both the administration and Congress seemed willing to wait until next year for action on raising the minimum wage—from $1 to $1.25—which includes some changes in the exemption of telephone operators' wages at small exchanges. Both the President and Congress reached an agreement on a modified version of the TVA self-financing bill. A Senate resolution to clarify the interpretation of REA lending authority for co-operatives in areas served was approved and needed no further action.

It is important to remember that all bills introduced and not actually defeated are still pending and could be enacted at the second session of Congress, beginning next January. Congress is still marking time on proposals to reform federal commission regulatory procedure as a result of recommendations growing out of the House Legislative Oversight Subcommittee investigation.

California Eyes Canada Gas Line

THE California Public Utilities Commission has filed notice with the FPC that it wants to know everything about a proposed gas pipeline between Canada and the Oregon-California border. Hearings on the plans will be held in Washington, D. C., by the FPC on October 21st. President of the California commission, Everett C. McKeage, said his state does not oppose the project, but merely wants to keep fully informed on developments.

The Canada pipeline involves the building, by Pacific Gas Transmission Company, of a 1,000-mile pipeline at a cost of $266 million. It would bring natural gas from Alberta to Klamath Falls, Oregon. Pacific Gas and Electric Company, which owns Pacific Gas Transmission, has applied for permission to build a 296-mile pipeline linking Klamath Falls with Antioch, California. The commission's interest in the Canadian gas pipeline is explained by the fact that 70 per cent of California's gas is supplied by El Paso Natural Gas Company.

Telephone and Telegraph

Telephone Cable Completed To Europe

On September 22nd the first telephone cable system to link North America directly to the mainland of Europe was opened. The new system is a joint enterprise and is owned by American Telephone and Telegraph Company, the French Ministry of Posts, Telegraphs, and Telephone, and the German Federal Ministry of Posts and Telegraph Communications. Under present conditions the cable can carry 36 simultaneous conversations; however, techniques are now under development which are expected to double this capacity.

The deep-sea segment of the cable was begun in March of 1959. Troubles plagued the project and on two occasions laying operations were halted. Huge ice fields off the coast of Newfoundland forced a temporary work stoppage. Some time later one of the two cable ships caught fire and all hands were forced to abandon ship. In a project of this size, covering thousands of miles of ocean, such problems are not surprising.

Difficulties also plagued the initial attempts to lay transoceanic telegraph cables. (It was only quite recently that the first transatlantic telephone cable was completed.) The first Atlantic telegraph cable laying attempt was made in 1857. This project ended when the cable end was lost in 2,000 fathoms of water. A year later a cable was completed but it only served for three months before service was interrupted.

The new telephone cable will form a vital link in communications between North America and the continent of Europe. New developments in cable construction will permit the transmission of conversation with a great degree of clarity. There will be a dependability of service far above that of radiotelephone connections. Each year the number of transatlantic calls increases and the new direct cable to Europe should boost this figure even higher.

Russia Stops Radio Jamming

For the first time in eleven years the Russian "jamming" of the Voice of America broadcasts has been brought to a halt. The "jamming" operation stopped just before Soviet Premier Khrushchev arrived in Washington, D. C. In the past, as part of the general "cold war" program, the transmission of Voice of America programs has been continually interrupted by Russian "jamming" activities. Radio monitors in London noted that the cessation of this activity was apparently aimed at permitting the Soviet people to hear

about Khrushchev's arrival in Washington. It is not clear if the "jamming" will be resumed when the Soviet Premier returns to Russia. However, with the "cold war" thaw which seems to be taking place, there may be the possibility that the continual "jamming" of the Voice of America will be brought to a halt.

Aircraft Identification Tags

A NEW radar identification system has been put into operation at the Newark airport in New Jersey. The system places electronic name tags on approaching planes through a series of radar pulses. The airport radar sends out coded pulses which trigger a response from special transmitters aboard approaching planes. These transmitters send back a pulse which shows up on the ground radar screen as a distinctive identification signal and thus name tag the airplane.

Under the old radar systems an approaching aircraft was merely a "blip" on the radar screen. Controllers often had to request that pilots make specific maneuvers so that an individual aircraft would be identified among the numerous "blips" appearing on the screen. The new identification system will prove of great value when large numbers of approaching aircraft appear on the screen at the same time.

The system, known as "beacon radar" is expected to enable ground controllers to identify positively one aircraft from another, and thus increase the safety and speed of airport traffic. The Federal Aviation Agency has also installed radar beacon systems at La Guardia and Idlewild airports.

Navigation Satellite Fails

THE first American efforts to test a satellite for global navigation apparently ended when the third stage of the rocket failed to perform as expected. A Thor-Able rocket was attempting to place a 265-pound satellite into orbit to study a more accurate all-weather system for air and sea navigation. This was to have been the first of five such satellites in a project called "Transit." If the attempt had been successful the satellite would have achieved a circular orbit about 400 miles above the earth. Such a satellite orbit would have a life expectancy of several years and the radio transmitters contained in the artificial moon were designed to operate as long as the orbiting continued.

Project "Transit" will extend over a three-year period and it is hoped that a reliable global all-weather means of fixing the position of surface craft, submarines, and aircraft will be evolved. A more precise method of maritime and aerial navigation is also anticipated. The system, once completed and perfected, will be placed in commercial use; however, no commercial ships were expected to take readings from this first satellite.

TV Aids Atomic Age Robot

THE Hughes Aircraft Company of Los Angeles has announced the production of a unique robot designed to aid work with "hot" radioactive substances. The machine, called "Mobot Mark I," was developed for the Atomic Energy Commission's Sandia Laboratories at Albuquerque, New Mexico.

The Mobot will use its television eyes to spot hot objects being tested. The operator of the Mobot will be in another area, behind a thick protecting wall of concrete. He will be able to direct the robot's work, however, through the machine's electronic eyes. The 4,300-pound steel monster is described by the company

as simple, rugged, and inexpensive. The Mobot is expected to pave the way toward new methods of handling radioactive materials, to spare man the risk of entering hot areas, and to enable the AEC to test and store radioactive subjects more efficiently. It has also been suggested that such a machine might well be adapted to other dangerous activities, such as fire fighting.

Equal Time Bill Becomes Law

PRESIDENT Eisenhower has signed into law the "equal time" bill. This law exempts radio and television newscasts from "equal time" demands of political candidates. The President said the new legislation would make possible the continued full participation of radio and television in the news coverage of political campaigns which is so essential to a well-informed America. He also stated that he was confident that stations can be relied upon to carry out the provisions of the act "fairly and honestly . . . without abuse or partiality to any individual, group, or party."

The law was prompted by a Federal Communications Commission ruling that a candidate for mayor of Chicago was entitled to equal time to that given Mayor A. Daley during the campaign.

Problems of Space Broadcasting

THE broadcasting problems associated with space travel are huge. In the not too distant future, rockets will be sent to the vicinity of Mars and Venus. Mars never comes closer to the earth than 34 million miles, and at times it swings 250 million miles away. Broadcasting from such distances poses a number of unique problems.

Chief among the satellite's problem is a power source. Broadcasting back vital information from such vast distances requires a great deal of electrical power. Chemical batteries capable of supplying such power are much too heavy. Solar power seems to be the answer. Vanguard I, launched in March, 1958, is still broadcasting information back to earth as it continues its swing around this planet. On board the Vanguard I are six solar cells which supply this transmitter with power.

ON August 7th the National Aeronautics and Space Administration launched the Explorer VI. This is the famous "paddle wheel" satellite. The paddles contain some 8,000 solar cells that turn sunlight into electricity. They are so arranged that at least one always faces the sun. Power from these cells is stored. The main transmitter remains silent for long periods of time while the two low power transmitters run continuously. Information gathered by the satellite is stored in a digital computer—then upon a command from earth the main transmitter turns on and pours out, in a few seconds, the information it has collected. Then another rest period takes place in which additional power is stored up for the next major transmission. This is considered to be the most sophisticated satellite thus far launched. Some similar system is sure to be used when the longer Venus-Mars shots are attempted.

Financial News and Comment

By OWEN ELY

AGA Forecasts Large Gas Construction Program 1959-62

CONSTRUCTION expenditures by the gas utility industry in the first quarter of 1959 were estimated at $361 million or 42 per cent more than in the same period of 1958; and in the second quarter at $512 million, also up 42 per cent. For the entire year 1959 construction is forecast at $1,859 million *versus* $1,618 million last year, a gain of 15 per cent. A small gain is also anticipated in 1960, followed by more substantial increases in 1961-62; the latter year is estimated at $2,166 million, or 34 per cent over 1958. On this basis, the average yearly increase in expenditures would approximate 7 per cent on a compounded basis.

The total amount of $7.9 million estimated for the four years 1959-62 compares with an actual figure of $6.3 billion for 1955-58, an indicated gain of 25 per cent.

The following table indicates the changes in percentage of natural gas construction expenditures, for the two years:

	1958	*1962*
Production and Storage	14%	9%
Transmission	45	49
Underground Storage	5	6
Distribution	32	32
General	4	4
	100%	100%

IT is estimated that funds for the four-year expansion program during 1959-62 will be obtained about as follows: from internal sources, 33 per cent; from sale of bonds and debentures, 46 per cent; and from sale of preferred and common stocks, 21 per cent.

The decline of about 9 per cent in construction expenditures in 1958 has been attributed to the business recession, which sharply reduced industrial demand for gas; a lower rate of housing completions; and regulatory uncertainties resulting from the earlier Memphis decision. However, 1958 reductions were more in the nature of "stretch-outs" than actual cancellations of construction programs. Among the important projects initiated in 1958 were the $160 million pipeline from Texas to Florida, which was com-

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pleted several months ago, built by subsidiaries of Houston Corporation.

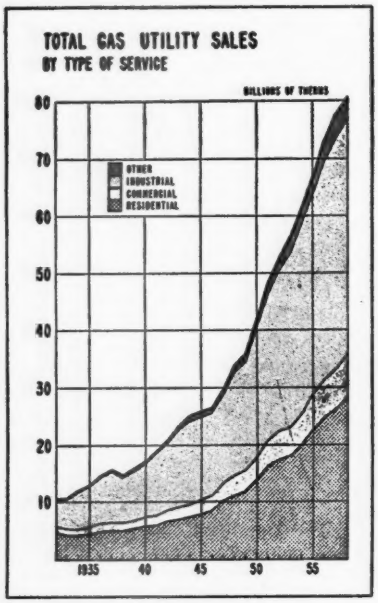
The Federal Power Commission in recent months has authorized some important expansion programs. Transwestern Pipeline Company has been authorized to construct a $192 million pipeline system, which would transport 300 million cubic feet of gas daily from the Permian-Panhandle area of Texas to southern California. However, in line with a recent U. S. Supreme Court ruling, the FPC specified that the fourteen independent producers who would sell the gas to the pipeline must reduce their proposed prices by amounts ranging from 8 per cent to 26 per cent, depending on the source. These cutbacks would bring the cost of the new gas more into line with prevailing prices in the area to be served. However, the producers have not yet decided whether they will supply the gas at the reduced prices required by the commission.

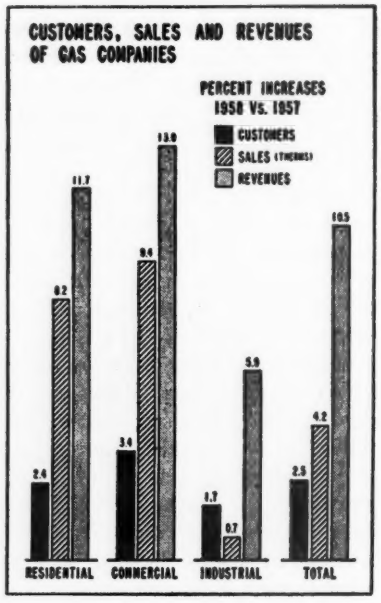
THE commission has also authorized Texas Gas Transmission to build 246 miles of line costing some $40 million, in order to transport about 100 million cubic feet of gas daily to Hope Natural Gas, subsidiary of Consolidated Natural Gas. Northern Natural Gas recently received approval to spend $122 million to add Duluth and Superior, plus some 300 smaller communities, to its system. In this same general area Midwestern (new subsidiary of Tennessee Gas Transmission), along with American Natural Gas, would like to spend $85 million to import gas from Canada to serve markets in Michigan and Wisconsin.

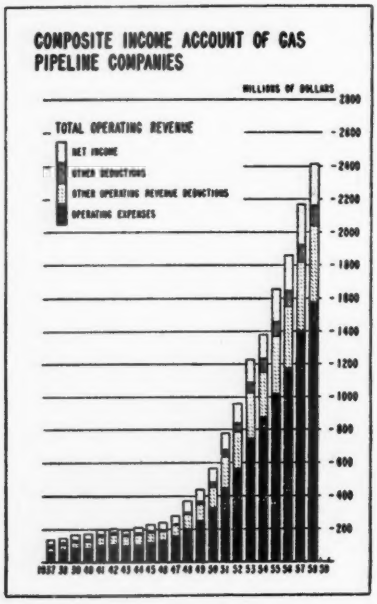
However, these plans are somewhat dependent on final decisions in Ottawa and Washington regarding exports of gas from western Canada to the United States; now that the Borden Commission has rendered its final report, some decision regarding such exports may be forthcoming early next year. (Action by the FPC is also necessary.) While the initial plan of Tennessee Gas Transmission to have its new subsidiary bring gas both from Canada and Tennessee to the Middle West has been curtailed, it has obtained approval for a $110 million program to serve Illinois and Indiana. This will permit local distributors to add some 100,000 new house-heating customers, considerably reducing the big backlog of demand in this area. Consumers Power, which distributes gas in Michigan, will also gain increased supplies since Panhandle Eastern's subsidiary has now been authorized to build an $82 million loop.

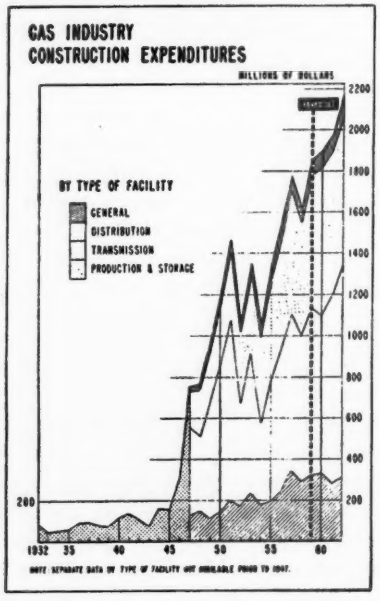
THERE are a number of other programs, some approved and some awaiting approval. Southern Natural Gas also obtained an OK for its $100 million expansion program, to be completed late this year, increasing its capacity by 35 per cent. Transcontinental expects to spend $110 million on pipelines and storage, part of which has been approved. Peoples Gas hopes to spend $50 million on routine additions. Columbia Gas expects to spend $125 million this year for expansion, Consolidated Natural Gas $74 million, and Texas Eastern $73 million. Among the projects involving two systems are the plan of Colorado Interstate to spend $91 million to move 200 million cubic feet of gas to El Paso Natural Gas, for the use of its California customers.

The industry's optimistic plans for expansion seem due to larger sales of gas (July showed a gain of 15 per cent over last year), the favorable Supreme Court decision in the Memphis case, substantially increased residential demands for house heating and air conditioning, etc. In the latter connection, AGA estimates that within three years about 300,000

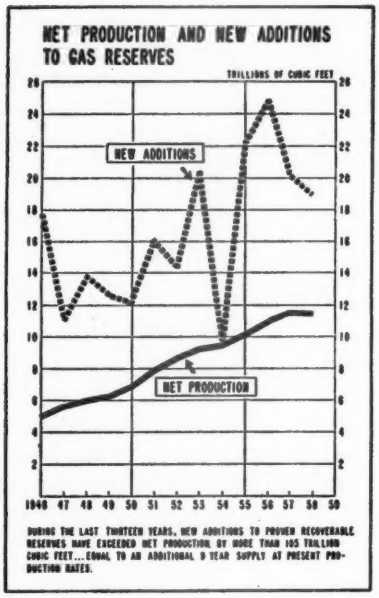


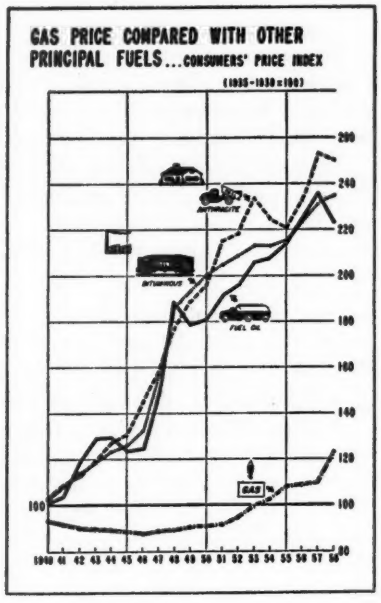


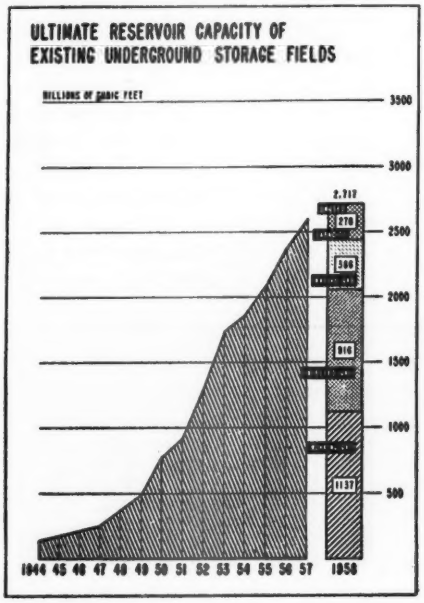


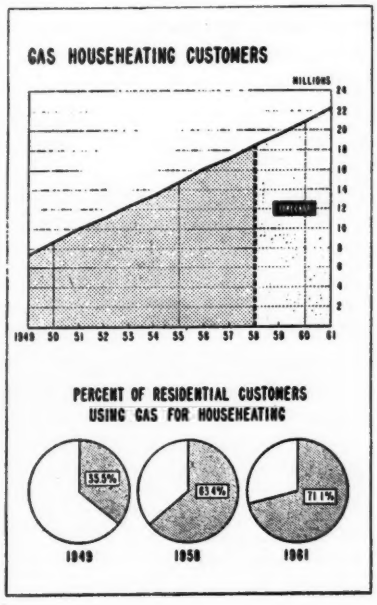


Source: A.G.A. Gas Facts.


NET PRODUCTION AND NEW ADDITIONS TO GAS RESERVES
TRILLIONS OF CUBIC FEET
NEW ADDITIONS
NET PRODUCTION
1940 47 48 49 50 51 52 53 54 55 56 57 58 59
DURING THE LAST THIRTEEN YEARS, NEW ADDITIONS TO PROVEN RECOVERABLE RESERVES HAVE EXCEEDED NET PRODUCTION BY MORE THAN 105 TRILLION CUBIC FEET... EQUAL TO AN ADDITIONAL 9 YEAR SUPPLY AT PRESENT PRODUCTION RATES.


GAS PRICE COMPARED WITH OTHER PRINCIPAL FUELS... CONSUMERS' PRICE INDEX
(1935-1939=100)
GASOLINE
BITUMINOUS
FUEL OIL
GAS
1940 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58


ULTIMATE RESERVOIR CAPACITY OF EXISTING UNDERGROUND STORAGE FIELDS
BILLIONS OF CUBIC FEET
2,717
270
300
810
1137
1944 45 46 47 48 49 50 51 52 53 54 55 56 57 1958



Source: A.G.A. Gas Facts.

residential customers will be using air conditioners; Arkla expects to sell some 15,000 air conditioners this year *versus* 8,000 last year. Moreover, Whirlpool Corporation has introduced a full line of other gas appliances—washer-dryer combinations, water heaters, refrigerators, and incinerators—a more efficient setup to compete with similar electric appliances. Sales of gas appliances in May and June showed substantial gains over last year.

HOWEVER, the regulatory picture still remains clouded although the FPC has indicated that it will clear up some long-pending cases by the end of this year. The recent El Paso decision, ordering that company to refund some $15 million to customers in a case nearly four years old, is not specially encouraging if it is followed by similar decisions. The major point of this decision was that integrated pipeline systems might, in effect, lose a substantial part of their rate base (the investment in production facilities below the well mouth), since the tax savings on 27½ per cent depletion and on intangible drilling costs would be considered as adequate return on such investment.

The industry reaction to this proposal (which will probably be tested in the courts) is not clear as yet although one important pipeline has indicated that it is not disturbed by the decision, and some others take the view that they will be treated differently. There is no evidence as yet as to whether the decision might cause spin-offs of producing properties, or affect the drilling program of oil and gas interests. Perhaps other FPC decisions, soon to be handed down, may be a determining factor in the industry's long-range plans for seeking new reserves.

A Critique of the Natural Gas Situation

THE article in the September issue of *Fortune* on "The Unnatural Problems of Natural Gas" is doubtless required reading for industry executives, but a résumé may interest those who have not yet seen it. The keynote of the article is that "nobody in this vital industry is happy despite its phenomenal growth in the last decade. A fumbling Federal Power Commission, reluctant to tackle its job of regulation, has created confusion bordering on chaos." The magazine points out that there is a backlog of well over 2,000 unsettled pipeline producer rate cases, many of them two or three years old. None of the 150 major producers can be sure what they can earn on their interstate sales which represent over half of the gas on the market. The commission after five years has not as yet come up

CURRENT YIELD YARDSTICKS
(Standard & Poor's Indexes)

	Sept. 16, 1959	*1958-59 Range*		*1957 Range*	
		High	*Low*	*High*	*Low*
Utility Bonds—A1+	4.66%	4.66%	—3.58%	4.38%	—3.70%
—A1	4.72	4.72	—3.61	4.41	—3.73
—A	4.92	4.92	—3.85	4.70	—3.96
—B1+	5.13	5.13	—4.20	5.21	—4.21
Preferred Stocks*	4.82	4.82	—4.26	4.86	—4.42
Utility Common Stocks	4.03	4.98	—3.71	5.44	—4.73

*Twelve industrial and two utility issues (high-grade).

with a formula for regulating producers' prices. Last year the courts of appeal reversed over half the commission's contested orders and this year the Supreme Court held the agency had approved a new high price for gas producers "on insufficient evidence."

Fortune admits that the job of regulating the industry is probably the toughest assignment ever given to a regulatory agency. The Natural Gas Act of 1938 was designed mostly to regulate the pipelines at a time when the industry was relatively quite small. The Supreme Court's decision in the Phillips Case (June 7, 1954) put independent producers under the act but no formula has yet been worked out for guidance of the staff. The commissioners' hopes that they could get some regulation through Congress to avoid the responsibility of regulating producers has proven unfounded thus far.

INSTEAD of being used as reserves for residential consumers where needed, a good deal of gas is being detoured to intrastate industrial uses. Thus Texas, which produces nearly half the country's gas, now consumes as much as it exports, chemical plants consuming vast amounts.

However, some producers have recently become interested in selling entire gas fields as units to the pipelines, thus obtaining better tax treatment and avoiding FPC regulation. Texas Eastern's Rayne field deal seems likely to set a pattern for gas fields which are close to pipeline systems, although the matter is being appealed by the New York Public Service Commission to the courts.

Gas distributors are concerned with price as well as the supply for house heating, etc. But where customers are near the gas fields, the higher prices can easily be absorbed because prices are still relatively low. Those further away do not always object strenuously so long as gas is priced under competing fuels, principally oil. Some producers too have a backlog of demand for gas for house heating and feel that supply is more important than price.

WILL gas producers tend to "price themselves out of the market" if allowed to do so? The great gamble for the pipeline enterprises, *Fortune* holds, is that the profitable winter heating loads must be balanced by industrial or other uses during the summer, or by adequate storage capacity. These off-peak sales are vital yet they remain the most vulnerable of all since they open up competition with other fuels. The gas industry should develop better off-peak uses than dump sales for boiler use, to protect its summer load.

Fortune recommends that the FPC stop looking to Congress for release and face up to its job of regulating the independent producers. (Is it coincidental that Commissioner Connole, in his August 14th talk before the New York Society of Security Analysts, promised that decisions in a number of key cases would be forthcoming before the end of the year?) The 6,000 small producers who contribute less than 10 per cent of the gas supply should, however, be exempted from regulation, which should be confined initially to some 200 big producers. (By implication, however, small producers would also be regulated.) High initial prices and new contracts should be "conditioned" by an investigation of their reasonableness, as now required by the Supreme Court in the CATCO case. The commission's conditioning of Transwestern's high initial prices in its August 10th approval of a certificate is a step in the right direction.

The *Fortune* story deals with industry problems "without gloves" but may stimulate both the commission and the industry to greater efforts to solve these problems.

Indiana Permits Transfer of Deferred Income Taxes to Earned Surplus

THE public service commission of Indiana, in a supplemental order dated September 8th, has amended its 1957 order which had precribed the reserve method of accounting for deferred federal income taxes.[1] Under the supplemental order Indiana utilities are given the option of following either the reserve method or the earned surplus method. Indiana & Michigan Electric Company, subsidiary of American Electric Power Company, has elected to follow the earned surplus method.

The commission stated:

Since the entry of the 1957 order, the commission has observed that, consistent with the findings of the Federal Power Commission, the mandatory use of the reserve treatment in accounting for accumulated deferred taxes will deprive a utility of cost-free equity capital available for plant expansion, will reduce the ratings of any new securities of a utility with attendant increased capital costs, and will require large additional equity financing with greatly increased cost of money; that such increased capital costs will further the need for rate increases and consequent increased costs to ratepayers . . . and that the results and effects of the 1957 order are not in the best interest of certain utilities, their ratepayers, and their investors or the public.

[1] Re Accounting Procedures, 21 PUR3d 414.

RECENT FINANCIAL DATA ON GAS UTILITY STOCKS

Annual Rev. (Mill.)			*9/16/59 Price About*	*Dividend Rate*	*Approx. Yield*	*Recent Share Earnings*	*% Increase*	*Aver. Incr. In Sh. Earn. 1953-58*	*Price-Earns. Ratio*	*Div. Payout*	*Approx. Common Stock Equity*
		Pipeline and Integrated Systems									
$ 5	O	Ala. Tenn. Nat. Gas	25	$1.20(k)	4.8%	$1.46Je	8%	11%	17.1	82%	40%
205	S	American Nat. Gas	58	2.60(L)	4.5	4.22Je	14	7	13.7	62	39
76	A	Arkansas Louis. Gas ...	57	1.20	2.1	3.08Je	46	55	18.5	39	53
55	O	Colo. Interstate Gas	45	1.25	2.8	2.71Je	NC	8	16.6	46	24
427	S	Columbia Gas System ..	20	1.00	5.0	1.31Je	D10	18	15.3	76	43
7	O	Commonwealth Gas	7	—	—	.49De	22	—	14.3	—	77
19	O	Commonwealth N. G. ...	23	1.00	4.3	1.57Je	D2	10	14.7	64	47
11	S	Consol. Gas Util.	19	.90	4.7	1.60Jy	3	7	11.9	56	57
304	S	Consol. Nat. Gas	48	2.10	4.4	3.07Je	D11	9	15.6	68	60
19	O	E. Tenn. Nat. Gas	11	.60	5.5	.86Je	D8	16	12.8	70	25
368	S	El Paso Nat. Gas	30	1.30	4.3	1.61De	D2	—	18.6	81	17
50	S	Equitable Gas	36	1.60	4.4	2.62Je	17	5	13.7	61	44
34	O	Houston N. G.	28	.80	2.9	1.44Ap	D23	9	19.4	56	18
21	O	Kansas Nebr. Nat. Gas .	39	1.80(f)	4.6	3.07Je	21	9	12.7	59	36
113	S	Lone Star Gas	39	1.80	4.6	2.31Je	D4	8	16.9	78	43
77	S	Miss. River Fuel	35	1.60	4.6	2.08Ma	NC	5	16.8	77	48
28	S	Montana Dakota Util. ..	31	1.00	3.2	1.77Je	11	12	17.5	56	29
26	O	Mountain Fuel Supply ..	24	1.20	5.0	1.76Je	7	3	13.6	68	51
94	S	Natl. Fuel Gas	23	1.15	5.0	1.91Je	37	6	12.0	60	56
139	S	Northern Nat. Gas	29	1.40	4.8	1.71Je	—	8	16.4	82	35
43	S	Oklahoma Nat. Gas	27	1.24	4.6	1.93Jy	18	5	14.0	64	34
121	S	Panhandle East. P. L. ..	45	1.80	4.0	2.74De	—	2	16.4	66	40
15	O	Pennsylvania Gas	25	1.20	4.8	2.13De	D2	20	11.7	56	59
188	S	Peoples G. L. & Coke ..	56	2.30	4.1	3.91Jy	30	4	14.3	59	41
26	O	Pioneer Nat. Gas	38	1.60	4.2	2.10De	D1	9	18.1	76	43
104	S	Southern Nat. Gas	37	2.00	5.4	1.84Je	D6	—	20.1	110	43
41	O	Southern Union Gas	25	1.12	4.4	1.40De	D9	8	17.9	80	27
402	S	Tenn. Gas Trans.	32	1.40	4.4	1.67Je	10	13	19.1	84	21

Annual Rev. (Mill.)		(Continued)	9/16/59 Price About	Dividend Rate	Approx. Yield	Recent Share Earnings	% Increase	Aver. Incr. In Sh. Earn. 1953-58	Price-Earns. Ratio	Div. Payout	Approx. Common Stock Equity
266	O	Texas East. Trans.	28	1.40	5.0	1.98Je	D25	13	14.1	71	21
104	S	Texas Gas Trans.	29	1.20(b)	4.1	2.14Je	13	3	13.6	56	33
115	O	Transcont. Gas P. L. ...	22	1.00(b)	4.5	1.49Je	2	13	14.8	67	19
318	S	United Gas Corp.	34	1.50	4.4	2.36Je	D6	4	14.4	64	42
		Averages			4.4%		5%	9%	15.6	70%	
		Retail Distributors									
32	S	Alabama Gas	32	$1.60	5.0%	$1.99Je	D27%	11%	16.1	80%	36%
53	O	Atlanta Gas Light	39	1.80	4.6	2.40Jy	D12	9	16.3	75	34
3	O	Berkshire Gas	20	1.00	5.0	1.46My	8	20	13.7	68	39
7	A	Bridgeport Gas	32	1.68	5.3	2.63Je	24	7	12.2	61	46
6	O	Brockton-Taunton Gas .	19	1.00	5.3	1.30De	10	18	14.6	77	46
79	S	Brooklyn Union Gas	58	2.20	3.8	3.28Je**	1	8	17.7	67	44
41	O	Central Elec. & Gas	22	1.05	4.8	1.78Je	15	9	12.4	59	17
13	O	Cent. Indiana Gas	15	.80	5.3	.77Je	D30	13	19.5	104	57
6	O	Chattanooga Gas	5	.35	7.0	.38F	D31	13x	13.2	92	43
15	O	Elizabethtown Cons. Gas	38	1.60	4.2	2.45Jy	D23	13	15.5	66	78
68	O	Gas Service	31	1.52	4.9	2.48Je	D13	11	12.5	61	36
9	O	Hartford Gas	46	2.00	4.3	2.45Je	16	—	20.0	82	51
3	O	Haverhill Gas	28	1.40	5.0	2.15Se	10	11	13.0	65	53
20	O	Indiana Gas & Water ...	24	1.00(b)	4.2	1.50Jy	D3	9	16.0	67	45
52	S	Laclede Gas	20	.90	4.5	1.13Je	D17	5	17.6	80	34
6	O	Mich. Gas Util.	23	1.05	4.6	1.53Je	16	4	15.0	69	34
44	O	Minneapolis Gas	30	1.50	5.0	2.07Je	12	5	14.5	72	46
17	O	Miss. Valley Gas	25	1.20	4.8	2.01Je	D16	7	12.4	60	34
6	O	Mobile Gas Service	26	1.10	4.2	1.23Je	D35	6	21.1	90	37
8	O	New Haven Gas	38	1.90	5.0	3.07De	30	11	12.4	62	67
15	O	New Jersey Nat. Gas ...	50	1.80	3.6	2.66Je	D2	—	18.8	68	34
91	O	No. Illinois Gas	32	1.00	3.1	1.75Jy	25	—	18.3	57	54
10	O	North Penn Gas	11	.60	5.5	.81De	4	10	13.6	74	60
18	O	Northwest Nat. Gas	17	.72	4.2	*1.24Je**	32	—	*13.7	58	36
285	S	Pacific Lighting	48	2.40	5.0	2.80Ma	5	8	17.1	86	42
10	O	Piedmont Nat. Gas	37	1.00	2.7	1.59Ma	D23	15	23.3	62	24
2	O	Portland Gas Lt.	17	.75	4.4	2.31De	128	21	7.4	32	27
10	A	Providence Gas	10	.56	5.6	.60De	20	5	16.7	93	50
4	A	Rio Grande Valley Gas ..	4½	.16	3.6	.38Je	20	9	11.8	42	55
6	O	So. Atlantic Gas	15	.80	5.3	1.22Se	27	5	12.3	66	32
14	S	So. Jersey Gas	26	.90	3.5	1.26Je	9	14	20.6	71	50
34	S	United Gas Impr.	56	2.40	4.3	3.41Je	16	5	16.4	70	54
60	S	Wash. Gas Light	47	2.24	4.7	3.69Je	7	10	12.7	61	37
14	O	Wash. Nat. Gas	21	(g)	—	1.24Je	135	5	17.0	—	40
10	O	Western Ky. Gas	18	.60(i)	3.3	1.36Je	D10	3	13.2	44	41
		Averages			4.5%		9%	10%	15.3	70%	

RECENT FINANCIAL DATA ON TELEPHONE, TRANSIT, AND WATER STOCKS

Annual Rev. (Mill.)			9/16/59 Price About	Dividend Rate	Approx. Yield	Recent Share Earnings	% Increase	Aver. Incr. In Sh. Earn. 1953-58	Price-Earns. Ratio	Div. Payout	Approx. Common Stock Equity
		Communications									
		Bell System									
$6,771	S	Amer. T. & T. (Cons.) .	76	$3.30	4.3%	*$4.94My	12%	4%	*15.4	67%	64%
329	A	Bell Tel. of Canada	42	2.00	4.8	2.14De	7	—	19.6	93	64
47	O	Cin. & Sub. Bell Tel. ...	92	4.50	4.9	5.15De	5	—	17.9	88	76
255	A	Mountain Sts. T. & T. ..	166	6.60	4.0	9.55My	7	4	17.4	69	76
354	A	New Eng. T. & T.	190	8.00	4.2	10.84Je	21	6	17.5	74	62
937	S	Pacific T. & T.	27	1.14	4.2	1.28My	20	1	21.1	89	61
119	O	So. New Eng. Tel.	40	2.20	5.5	2.75Je	13	7	14.5	80	61
		Averages			4.6%		12%	3%	17.6	80%	

Annual Rev. (Mill.)		(Continued)	9/16/59 Price About	Dividend Rate	Approx. Yield	Recent Share Earnings	% Increase	Aver. Incr. In Sh. Earn. 1953-58	Price-Earns. Ratio	Div. Payout	Approx. Common Stock Equity
		Independents									
6	O	Anglo-Canadian Tel. ...	34	$1.20	3.5%	$3.15Je	D1%	21%	10.8	38%	52%
45	O	British Col. Tel.	43	2.00	4.7	2.11Je	1	—	20.4	95	28
4	O	Calif. Inter. Tel.	15	.70	4.7	.98Je	12	NC	15.3	71	24
22	O	Calif. Water & Tel.	26	1.28	4.9	1.79De	36	2	14.5	72	37
20	O	Central Tel.	27	1.00(b)	3.7	1.94Je	7	5	13.9	52	33
5	O	Commonwealth Tel.	18	.90	5.0	1.35Je	D6	15	13.3	67	35
5	O	Florida Tel.	32	1.00	3.1	1.21My	21	—	26.4	83	42
552	S	General Tel. & Elec.	69	2.20	3.2	3.11Je	7	NC	22.2	71	34
20	O	Hawaiian Telephone	23	1.00	4.3	1.27Jy**	10	4	18.3	79	44
8	O	Inter-Mountain Tel.	16	.80	5.0	.91De	D3	—	17.6	88	54
23	S	Rochester Tel.	26	1.00	3.8	1.59Je	16	4	16.4	63	33
11	O	Southwestern St. Tel. ...	23	1.20	5.2	1.36Je	D14	—	16.9	88	37
38	O	United Utilities	31	1.25	4.0	1.64De	6	3	19.0	76	36
16	O	West Coast Tel.	25	1.20	4.8	1.56Je	21	—	16.0	77	32
255	S	Western Union Tel.	38	1.20	3.2	1.89De	D7	—	20.1	63	85
		Averages			4.2%		7%	8%	17.4	71%	
		Transit Companies									
20	O	Baltimore Transit	9	—	—	$ .58De	D43%	—	15.5	—	48%
12	O	Cincinnati Transit	6	$ .30	5.0%	.31De	D40	—	19.4	97%	54
65	S	Fifth Ave. Coach	14½	—	—	.02De	D99	—	—	—	75
305	S	Greyhound Corp.	20	1.00(o)	5.0	1.23De	1	—	16.3	81	50
25	S	Nat. City Lines	29	2.00	6.9	1.69De	D38	—	17.2	118	94
13	O	Niagara Frontier Trans.	10	.60	6.0	.10De	D87	—	—	—	67
17	A	Pittsburgh Rys.	14	.25	1.8	.32Je	NC	—	—	78	90
6	O	Rochester Transit	6	.40	6.7	.86De	34	9%	7.0	47	100
21	O	St. Louis P. S.	11	1.00	9.1	.68De	4	—	16.2	147	97
14	S	Twin City R. T.	10	—	—	.24De	D70	—	—	—	65
19	O	United Transit	7	.60	8.6	.75De	D4	—	9.3	80	55
		Averages			6.1%		(D)34%	—	14.4	93%	
		Water Companies									
		Holding Companies									
43	S	American Water Works.	14	$ .60	4.3%	$1.18Je	22%	—	11.9	51%	19%
		Operating Companies									
5	O	Bridgeport Hydraulic ...	33	$1.70(f)	5.2%	$1.75De	D15%	2%	18.9	97%	53%
16	O	Calif. Water Service ...	25	1.20(j)	4.8	1.70Je	5	1	14.7	70	36
4	O	Elizabethtown Water ...	51	2.00	3.9	3.78De	D3	11	13.5	53	59
11	S	Hackensack Water	46	2.00	4.3	3.29De	D5	—	14.0	61	35
9	O	Indianapolis Water	25	1.00	4.0	1.22De	D4	5	20.5	82	36
6	O	Jamaica Water	42	2.20	5.2	3.24Je	D2	1	13.0	68	27
5	O	New Haven Water	65	3.40	5.2	3.32De	9	5	19.6	102	61
2	O	Ohio Water Service	27	1.50(b)	5.6	1.77Je	D14	—	15.3	85	31
9	O	Phila. & Sub. Water ...	50	1.60(b)	3.2	2.75Je	D7	—	18.2	58	27
2	O	Plainfield Un. Water ...	61	3.00	4.9	4.31Ma	D3	3	14.2	70	64
5	O	San Jose Water	33	1.30(f)	3.9	2.31Jy	37	12	14.3	56	41
11	O	Scranton-Springbrook ..	22	1.00	4.5	1.65Je	D1	4	13.3	60	25
5	O	South. Calif. Water	19	.80	4.2	1.20Je	6	6	15.0	67	33
4	O	W. Va. Water Service ..	20	.68(d)	3.4	1.47Je	D10	—	13.6	46	18
		Averages			4.5%		D1%	4%	15.6	70%	

A—American Stock Exchange. O—Over-counter or out-of-town exchange. S—New York Stock Exchange. Ja—January; F—February; Ma—March; Ap—April; My—May; Je—June; Jy—July; Au—August; Se—September; Oc—October; N—November; De—December. NC—Not comparable. NA—Not available. D—Decrease. *On average shares. **Includes tax savings from accelerated depreciation. (a) Adjusted to eliminate 13 cents per share of nonrecurring tax savings. (b) Also stock dividend in 1958. (d) Also one per cent stock dividend quarterly. (e) Also 10 per cent stock dividend May 19, 1958. (f) Includes extras. (g) Five per cent stock dividend April 10, 1959. (i) Also 5 per cent stock dividend December 29, 1958. (j) Also 5 per cent stock dividend March 19, 1959. (k) Also 20 per cent stock dividend March 9, 1959. (L) Also 10 per cent stock dividend June 10, 1959. (n) Excludes profit realized on sale of Los Angeles Transit $3.81 per share. (o) Also 5 per cent stock dividend June 30, 1959. x—1952-57.

What Others Think

Gas Faces a Big Fact-finding Job

WHETHER or not our economy has gone through the looking glass, and we are now with Alice in Wonderland, certainly technical men are continually running into things that lead to such a view.

For instance, just now, they are telling gas utility management that it ought to disregard price tags on natural gas, and pay more attention to selling. It can make more money.

Of course, the technical fellows say this in their own professional lingo, and have to be translated, but in effect they insist that at certain seasons, of some years, some gas-distributing companies could buy gas at Tiffany's, in solid gold cans, and have a better balance sheet at the end of the year.

Not ask for higher rates, either.

Nor clash with any regulations.

They are backing up these statements with CPA cost figures.

And a Federal Power commissioner assures gas management that there is no catch in it.

A Tiffany salesman once told me that the store's prices were not as high as people imagined.

"Take our silver spoons," he said. "Put them on the scales with any others, and compare the weight of metal. You will find that Tiffany design and workmanship are not expensive. You would be proud to hand down our spoons to your grandchildren."

He seemed to feel hurt about it, as Detroit felt when people fell in love with small cars.

This may be true today of Tiffany's wares, but at all events the technical men are telling gas utility management that a new era is opening up in that business, and that they ought to restudy their plant investment, and equipment, and pipeline costs, and general setup, to take advantage of recent technical developments.

Especially to study their selling. Sales spirit may do for gas what it is doing in telephony.

THE gas business has got into a state of affairs where, at times, it has to shut off some customers, the factories, and serve only householders, lasting out an unforeseen cold spell. For some gas companies this situation is steadily getting worse.

Technically, it is being solved by new methods of liquefying natural gas. Ten years from now a gas company with this peak handicap may order extra supplies into the nearest harbor, and sell all the gas that anybody wants. It will come from the

Middle East, or South America, in tankers. Also, our own domestic natural gas will probably be delivered in liquid form, by railroad.

Let the weather be what it may, with a cold spell every winter, or one at intervals of several years. There will be no necessity for storing gas underground to meet it.

And it will hardly be bought at emergency prices—the Tiffany illustration is for dramatic effect. Gas management may benefit by a little startling.

Also since the good ship *Methane Pioneer* unloaded the first cargo of Louisiana natural gas in England, a few months back, it is realized that a new kind of gas regulation will be needed for our own industry.

This will be national regulation, with international aspects, enacted by Congress. In the light of regulation imposed on natural gas producers, it is seen that Congress will have to have better information than it had when the 1938 Natural Gas Act was passed. The gas industry is being advised to develop information upon which Congress can base more intelligent laws.

A Bit of John Bull Himself

SPEAKING to utility attorneys in Washington last spring, Federal Power Commissioner William R. Connole told them that the *Methane Pioneer* was not a ship, but a new branch of the petroleum industry, a new chapter in the world's utilization of its energy. Outlining some of the regulatory problems that are arising with this new phase of the industry, he expressed his belief that within five years imported gas will be coming into this country for peak-shaving requirements, and that by 1970 it will be burned on the Pacific as well as the Atlantic seaboards.

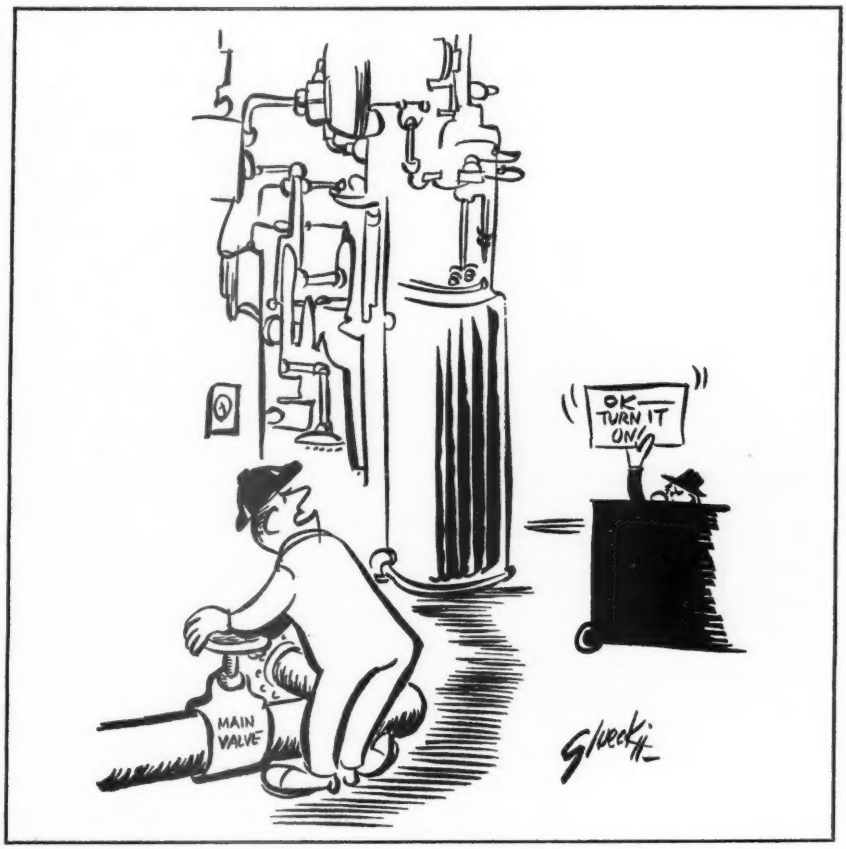
"What is liquefied methane—how is it different from the natural gas we now get through pipelines?" is a good kid question. The difference is important in the successful liquefying process that has been developed, but not to gas consumers. As natural gas comes from the well, it contains water and carbon dioxide. As methane has to be reduced to 258 degrees below zero, these components form ice and must be scrubbed out, to avoid clogging equipment. Nitrogen, oxygen, and other components that do not liquefy are also removed. The result is liquid methane, marsh gas, which, when reformed for gas mains, is essentially natural gas.

And an important point for the kids who know bottled gas—that the latter comes in tanks under pressure, but liquid methane is at atmospheric pressure. It is carried to market like meat or vegetables in refrigerator cars, only the refrigeration being different. On this characteristic this new liquefied business is built.

THE arrival of the methane ship was regarded in this country as something for which the world should be grateful to American technology. Millions of men liberated from the coal shovel thought, "How nice for Europeans who have never known anything but manufactured gas, to get our cheap natural gas at half the rate."

The British took a different view. They had had this idea of liquid gas for more than forty years, had worked on it, following our Bureau of Mines' work on helium, had patented some sort of barge to carry liquid gas back in the First World War days. They had put up $5 million for the conversion of the tanker, matching our $5 million for the liquefying plant in Louisiana, and another million for a reforming plant on the Thames.

It was a complex of British and American research, with no individual inventive genius in sight, and English phlegm was seen in the fact that the ship was handled



by experienced seamen from a British shipping company which, more than 250 years ago, had sent a ship to Louisiana—of course not for natural gas.

A bit of John Bull himself!

The Old Law That Was Forgotten

ANOTHER fact overlooked in our kindly thought for the world was that our natural gas is no longer as cheap as it was, and that this bounty of methane from lands where gas is being flared, as a nuisance, is a bargain for ourselves as much as the European housewife. To millions of American housewives it is still a bargain, but utility management is finding it otherwise in many areas.

Natural gas cost about six cents a thousand when the pipelines were flung across the country, and utilities developed underground storage to take it in for peak shaving. The stuff was so abundant; had yesterday been so worthless for lack of markets! The pipelines were built to serve distant areas in which approximately half the American people live, in the Northeast, industrial Midwest, and Pacific states. Utility management had what one investigator calls the "happy worry" of getting enough gas for everybody, at a good profit.

Apparently nobody looked up the law of supply and demand. Our new era viewpoint often assumes that it had been repealed, like prohibition. Or that with a strong lobby in Washington it can be taken care of with a "fix," like farm surpluses.

In ten years, the price of gas at the well more than doubled. The costs of pipeline materials, construction, and operation increased in the same ratio. Likewise, the cost of the holes in the ground for storage, which were harder and harder to find, often had to be blasted. Tax authorities in gas-producing states began to eye the stuff as a new source of revenue. Uncle Sam decided that natural gas was something to be regulated in the interest of the public.

THESE problems are already affecting utility companies out at the ends of the longest pipelines. Their peaks are being sharpened, some of their industrial customers are studying steam-raising costs and peak shutoffs, oil and coal are coming back into competition.

These trends will continue, in Commissioner Connole's opinion, and bring imported methane into the utility picture.

"The high costs of transporting gas into those markets," he told the utility attorneys, "make it necessary that investment per Mcf of peak capacity be kept as low as possible The only alternative is that the valleys between the peaks be filled so that this investment will be spread over as many Mcf as possible. With the price at the wellhead and costs of transportation both increasing, eastern seaboard companies are losing, or will soon lose, many of the markets into which valley sales used to be made."

Utopia Just Around the Corner

LET us be imaginative, as the young engineers in "Tech" are being urged to be, to read the Great Books, study the Great Lives, while mastering the telephone or gas business.

We are in the New Era. This is now 1965, and already we have become president of a gas company where a New England cold snap can "shet daown," or freeze all the bananas in southern California.

Not so long ago, in what might be called the grasshopper-and-ant days of the gas business, we would have hurried to shut off all our industrial customers, and draw upon our stored gas. Every hole in the ground, every cracked teacup filled with Mcf against this day, and pray that it may be enough. That was the day the technical fellows were telling us that, if we could find some extra gas to keep everybody on their meters, we could have afforded to pay any price for it. The year's gross would have made it the cheapest "buy" of the year. But there was no such peak-shaving gas anywhere around.

Now, in this new era, there is unlimited gas plying the oceans, and at reasonable, perhaps bargain, prices. The methane tanker has come of age. Just as cars of California lettuce, Florida strawberries, are sent rolling in winter, to be diverted to any market that wants one, so the methane tankers are out there, ready to be ordered into the nearest harbor. Four moderate-size ones can deliver a million cubic feet into your mains. Let cold weather come when it will, last as long as may be, it brings good cheer.

There is not the slightest doubt about this peak-shaving abundance coming. The engineering is being polished off. The nuisance gas is now being flared on three continents. Supply is there, now that a demand has been found. The industry is in the making.

A Kennel of Sleeping Dogs

BUT before any gas utility can draw upon this new resource for peak shav-

ing, there is a formidable job of regulation to be tackled. The import gas situation appears to be more complicated than that in oil importing, which may be taken as a battle under way, of the kind that can be staged with methane. Commissioner Connole advises the natural gas industry —the whole industry—to begin studying the facts before conflicting interests begin fighting, as he puts it, "to preserve a position that may not have been sound in the first place."

These interests now are sleeping dogs. It will be more advantageous to analyze issues before they are wakened and begin barking.

First, there are the domestic producers, large and small, some with only gas to sell, others like the oil companies with by-product gas. They have great investments to protect, payrolls, jobs, votes. A situation charged with pressures, emotion.

According to the price of gas, they are able to carry on exploration, which is as necessary a part of the industry as production, and will have to be taken into account.

Community leaders, even governors, could be drawn into this battle, for gas is the meal ticket in the producing states, and the tax collector is eying it, in the eager 1959 foraging for new state and local revenue.

More investments, jobs, stockholders, votes, potential pressures in natural gas going to market. The pipeline companies are affected by rising costs in construction and operation. They have an uneasy depreciation structure. They have competition between themselves, and, taking a leaf from the book of the brewer, have sometimes "tied" the utility, like a saloon keeper, in their sales contracts.

THIS imported methane will be marketed by American as well as foreign interests, because American oil companies have developed much of it. Until today it has been worse than a dry hole in oil exploration, something to be got rid of. Now it has a market. Americans will undoubtedly be active in the tanker trade. Patents on the liquefying process are American, but the trade will undoubtedly be international, under royalties, or improvements. So there will be another voice raised in Congress.

Then, there is the "Good Neighbor" interest, typified at the moment by Venezuela's protest against our oil import policies. From splendid isolation, we have become the world's Great White Father. Its Good Customer. According to our ability to buy, as well as give financial assistance, other countries are happy or unhappy.

An English sociologist, Peter M. Worsley, reports a curious echo of our recent recession, in a *Scientific American* article. Stone Age people in the South Seas were hurt by falling prices for copra, and, like our own economists, developed a theory to explain what happened to them. They expect the coming of a Messiah, who will give them the white man's goods. Also, when he appears, black people will turn white, and white people black.

Today, we are not alone in the Good Neighbor rôle.

There is now a Great Red Father.

Who Gets How Much, Where, When?

SHALL the Boston or Los Angeles housewife be charged more for gas than her sister in St. Louis or Denver? Or the factories near the gas fields enjoy uninterrupted production while San Francisco or New York metropolitan plants shut down? Interesting to note, cold weather is not so likely to affect industry nearest the gas-producing states.

Assuming that methane imports will

figure in the utility picture tomorrow, permitted on a carefully calculated peak-shaving basis, how much methane will regulation allow a particular company? This brings up questions of its location, its weather, the pattern of its winter peaks, the number of its customers, its rates, the economies it can effect by reducing the investment in its storage facilities . . .

There is the possibility that gas air conditioning may build a summer load, or some similar peak-shaving new use be developed. Even this could raise regulatory complications. The winter peaks in Minnesota would be greater than those in Missouri, and the air-conditioning load smaller.

These are all good questions—there are many more—and Congress will have to take them into account in framing the new regulations that are becoming necessary with technological development in the industry, as well as imported methane. Information about particular utility companies will have to be weighed to establish some general procedure for the whole industry, and for the public good, which is the basis of regulation.

There is also the factor of protecting our domestic gas industry against the hazards of war.

This job plainly calls for a Solomon.

He may have to cut the baby in two or more pieces.

Will Gas Be Too Valuable to Burn?

THE kindest thing that can be said for the Natural Gas Act of 1938 is that it was what the English call a "brave try," framed with the best of intentions, and hardly any information.

Everybody who has tried to live under it has suffered, especially the commissioners who have tried to interpret and enforce it. Difficulties, frustrations, and irritations have plagued the Federal Power Commission because, as Mr. Connole says, Congress was foggy in saying precisely whether independent producers should be regulated. When the Supreme Court settled that question, a regular Pandora's box of problems was opened, involving thousands of cases.

The fact is, there was hardly any information about natural gas when this law was passed. Congress saw a practically worthless fuel now going to market, burned by housewives and factories, sold by utility companies that were already regulated, and reasoned that some sort of policeman ought to be staked out to watch it, for the public good. A worthy purpose and, for that day, apparently a good law. Nobody realized as yet how this new industry was going to grow.

Some of the largest customers for natural gas are not on utility meters—the petrochemical manufacturers. They are pretty certain to have a voice in Congress, and a concern with regulation.

Chemicals derived from oil and gas now make up nearly half the chemical industry's total output, and the ratio is increasing. We eat petrochemicals—plant foods and pesticides make up the largest market; they increase production and save labor, as with the weed killers that supplant the hoe.

An auto tire now contains about 10 per cent natural rubber, the rest synthetics, from styrene and butadiene.

A MAJOR distilling company went into petrochemicals during prohibition, but sold that line before repeal, expecting that liquor would come back big. It did not. High taxes cut down drinking. So the company is going back into petrochemicals.

This industry now has underground storage for propane, butane, and other materials. Chemists maintain that oil and gas

will ultimately be too valuable as manufacturing materials to burn, expecting atomic and solar power to release them from energy uses.

The availability and price of natural gas are critical in this industry, and it felt that a green light had shone when, last spring, the Supreme Court reversed the Memphis case decision. Assuming that interference with its basic material had been cleared away, expansion plans were laid, to be halted by the Zwerdling rate formula for regulating independent gas producers. Joseph Zwerdling is a veteran rate examiner for the Federal Power Commission. *Chemical Week* regards it as a "phantom tax" ruling which will start another period of lawsuits, and, by reason of its low ceiling on prices, discourage exploration, upon which the gas industry depends.

Also, state taxes threaten petrochemical materials, and the new methane industry might, thinks *Chemical Week,* divert some of our domestic gas to foreign markets.

How much we have to learn about this "bustiferous" postwar business, its many branches, its bewildering technology, is shown in the "sour gas" department of the chemical industry.

Recently, great reserves of natural gas have been discovered in Canada. It is mostly sour—contaminated by sulfur, unfit for fuel until sweetened. Sulfur is a readily marketable material, basic, much of it used for sulfuric acid, the "bread of industry." Once it was mined around volcanoes—Sicily had a big sulfur business. Then the Frasch process, melting sulfur by pumping down hot water, and pumping sulfur up, gave this country leadership, provided sulfur for the past sixty years of our industrial expansion.

Now, sulfur from sour gas is rivaling the Frasch product, so the Canadians have something new to sell. Their gas is far from pipelines. Extracting sulfur without a market for the sweetened gas is not economic. The gas would probably have to be flared. But the Canadians, and American corporations, propose building pipelines, one even to pump the sulfur to market. And utility management in border states may eventually be looking to Canadian gas, for peak shaving, and perhaps to counterbalance rates with those paid by householders and industry nearer our own gas fields.

All of which would have to be adjusted by suitable regulation.

Something Like a Rat Race

The Tiffany idea, that a utility company can pay almost any price for peak-shaving gas if it has enough for everybody all year round, is borne out by investigators who are looking for "outs." Especially peak-shaving methods that will require no federal regulation, but solve the problem by utilizing recent technological developments.

Suppose a utility company were able to change its equipment so that uninterrupted service could be guaranteed its industrial customers. It would sell more gas over the year, make more money, and its industrial customers could in turn take care of their customers, make more money. They would not be thinking about going back to oil or coal!

One way in which this happy state of affairs may be brought about, and with no necessity for federal regulation, is by utilizing the 1/600 bulk reduction of liquefied methane. A thoroughgoing job of assembling data for such an "out" has been done by A. Russell Young, an executive of the Constock - Pritchard organization, which carried out the research and engineering for the *Methane Pioneer.*

His report indicates that for some utilities large enough to make the investment,

peak-shaving methane can be liquefied and stored in the same type of insulated tanks fitted into the methane ship. Such tanks have been in use for several years for storing liquid oxygen at 300 degrees below. In fact, the technology of liquid oxygen has made great contributions to the natural gas possibilities.

Mr. Young's studies, based on the peak patterns, volume, rates, and finances of several large utility companies, cover the questions that will arise when utility management weighs the possibilities for changing plant from underground to surface storage. His data apply only to plants large enough to make the necessary investments in liquefying and storage equipment. Each company must do its own engineering and financing, according to its own conditions. Which is just what each company will have to do in adjusting to regulation of imported methane.

THERE are other technological advances in storing peak-shaving gas under pressures, with safety, and they will become more and more important as utility peak problems become more complex.

For the utilities are really in a rat race with the birth rate, the demands of their customers according to locality, and with rising costs of gas, pipeline transportation, and underground storage.

Their peaks are getting steeper. Each year they have to lay away more gas, and shut off industrial customers for longer periods, not altogether on account of weather, but because customers at the ends of the longest pipelines are converting from coal and oil at faster than the national rate. There has been a rate advantage. There is greater convenience. They are excited about gas. Also, population is growing faster on both coasts.

Mr. Young finds some utility brass skeptical of his data on rising costs. It is assumed that peak problems are being taken care of by higher rates, by crowding underground storage.

"It can't be that high," he is sometimes told. "Don't confuse us with facts!"

Wanted—A More Equable Planet

MOST gas utility problems come down to weather.

Meteorologists look toward a day when weather can be forecast long range, giving utilities a peak pattern for at least a year. Or as more is learned about weather through space research, there may be control, abolishing the peaks.

Utilities might give space explorers specifications for a planet with a climate like Arequipa.

Peruvians get dreamy eyed as they describe the eternal spring of Arequipa, hanging in a precise balance between latitude and altitude.

Such a planet, if it can be found and colonized, could be a Garden of Eden for a utility company.

If it has natural gas.

And customers.

—JAMES H. COLLINS

Pipeline Construction Stimulates Archaeology

ARCHAEOLOGY and pipeline construction would seem to have little in common. However, Gene Bylinsky, in a recent article in *The Wall Street Journal,* has pointed out that a large degree of co-operation exists between these two divergent fields.

Not too long ago the field of archaeology was left to the bearded scientist who combined a large degree of scientific

"I WAS AFRAID OF THAT—AFTER THE SUPER RECONDITIONING JOB ON THAT PUMP!"

knowledge with the purer forms of scholarship. Such men as Jean Francois Champollion, who deciphered the Rosetta Stone after twelve years of pondering, pursued their profession without the help of pipeline construction companies or amateurs. Mr. Bylinsky points out that the field of archaeology has now been joined by private companies, federal and state governments, and "hordes" of amateurs. The rush into the field has boosted the sale of books and equipment relating to the field and it has also stimulated the search for more precise methods of evaluating archaeological finds. Concerning this new interest Mr. Bylinsky states:

Scholars credit much of archaeology's current appeal to archaeologists themselves who, as one noted, are devoting their efforts "less to flints, bones, and fragments of earthen pots, per se, and more to interpretation in terms of man's cultural development." Attests Dr. Waldo Wedel, curator of archaeology at the Smithsonian Institution in Washington:

"Archaeology has given a new perspective to man's story; it has shown how recent is the phenomenon we call civilization, and how much that development owes to various peoples and regions."

THE speed with which new construction projects are being developed poses a threat to many lingering traces of now dead cultures. Many companies, including El Paso Natural Gas Company, Shell Oil Company, Colorado Interstate Gas Company, and Standard Oil Company of Texas, are contributing sums of money to support archaeological research. Most of these companies see contributions to such projects as means of showing their civic-mindedness. This participation by oil and gas companies has produced a new and special branch of the science which Mr. Bylinsky calls "pipeline archaeology." A team of scientists rush ahead of proposed pipeline routes removing historic samples that would be destroyed by the digging machines. Mr. Bylinsky notes that pipelines have not been delayed by this process; however, in one instance, it was necessary for the archaeologists to work through the night to save choice artifacts.

Enthusiastic amateurs come from every walk of life to participate in digging. Mr. Bylinsky observes that in Wapanucket, Massachusetts, Maurice Robbins, superintendent in the meter department of the Attleboro Steam & Electric Company, supervises the amateur digging of a buried Indian village. Mr. Robbins holds a doctor's degree in anthropology and he has commended the work of the amateurs in their scientific hobby.

THE laboratories of major oil companies have been put to the task of dating archaeological objects. Under ordinary circumstances, dating of geological deposits would be the prime concern of these labs. However, the technique of determining age through the deterioration of carbon 14 has caused a good many scientists to take a second look at previously established dates. Mr. Bylinsky notes that the Ice Age in America ended a mere 10,000 years ago, much later than scientists had previously suspected.

Oil and gas companies have also aided archaeologists by subsidizing various publications. El Paso Natural Gas has supported the publication of a 410-page volume devoted to the archaeological finds along its pipeline routes.

Mr. Bylinsky mentions a recent archaeological find which should be of interest to every rushed utility executive. A 2308-year-old pillar was discovered not long ago in Greece. Written on the pillar in hieroglyphics was the complaint of a businessman who suffered from a most modern ailment—ulcers. Evidently there has been little progress in at least this one area of the businessman's life.

—C. B.

Creating a Mall in Downtown Shopping Areas

A RECENT article in the *Pittsburgh Press* by William A. Allan explores the activities in various cities which are attempting to save the blight-stricken downtown areas. Nearly every city in the nation has an area, right in its central section, which no longer has prospering businesses and shops.

Those stores which do remain suffer from decreased business and generally tough sledding. Of course there is an immediate impact on the economy of mass transit facilities already hard pressed by auto competition, traffic jams, and disorganized routing. But other utilities—gas, electric, telephone—have an inescapable stake in the solution, if any. The Rochester (New York) *Times-Union* recently

ran a series of articles dealing with the possible local application of the "Toledo plan" for a mall development in the downtown area of that city. Mr. Allan's piece dealt with the same situation in Pittsburgh.

There are many reasons for the downtown slump, which has caused concern even in our nation's capital, Washington, D. C., and adjacent Baltimore, Maryland. The affluent taxpayers are moving out to the suburbs and retail business is following them. Less affluent new residents are moving into these vacant or depressed areas, and may go on relief. So instead of taxpayers, the city ends up with tax eaters and the exodus of business is accelerated. Part of it can be attributed to the exodus of persons toward the suburbs. Another reason would be the advent of that new American marvel the "shopping center." There are very few large department stores in any metropolitan district which do not maintain at least one such branch store in the surrounding suburban areas. Traffic problems also are a prime reason for shoppers staying away from congested downtown areas. With branch stores in suburban areas why should the average housewife fight downtown parking and traffic problems?

MR. ALLAN notes that officials in Pittsburgh have been considering the establishment of a mall in the downtown area in order to entice suburbanites back into the city to shop. Pittsburgh officials have inspected the mall idea which has been tried in Toledo, Ohio. The city fathers of Toledo closed two main streets in the downtown area for a stretch of two blocks each. These are not main traffic arteries. Small areas were planted with shrubs and flowers, statues and fountains were added, and a playground, under Toledo Recreation Bureau supervision was established. The reaction to this experiment has been most favorable. People seem to like the spirit of meeting with friends while they shop in an atmosphere of comfort and ease. However it is all an experiment and Toledo's Mayor Yeager stated:

> It is slated to come down in about a month, but the reaction has been so good I imagine it will be left intact much longer—perhaps up until the Christmas shopping season.
>
> But certainly it will be torn out. Then we will face the problem of if and where we can erect a permanent mall.

Mr. Allan notes in his article that just $15,000 was spent in erecting the greenery in the mall area. Merchants have reported an increase in business ranging from 10 to 20 per cent. It is difficult to determine, the article observes, if this figure represents a permanent increase in business or only those people who came to see and also made some purchases.

As suburbia continues to grow there will be more attention given to downtown city areas. Such things as improved public transportation, more attractive shopping areas, and better parking facilities could do much to set back the advancing plague that nearly every city now feels.

The Importance of Oil Products to the U. S.

IN late August Administrator M. V. Carson, Jr., Oil Import Administration, Department of the Interior, spoke before the Second Century of Oil Conclave at Titusville, Pennsylvania.

Mr. Carson noted that the present age might be known as the "Oil Age" or the "Combustion Engine Age" even though

we now seem to be moving into the wonders of the "Atomic Age." He recalled that it was only a hundred years ago that Edwin L. Drake drilled a well 69½ feet and struck oil at Titusville. This produced about ten barrels of oil a day. Just one hundred years later our daily oil consumption is about 10 million barrels per day.

It was noted by Mr. Carson that the combined mobile horsepower of the United States is greater than that of our factories. Our gasoline-driven cars number in tens of millions. The gasoline-powered vehicle touches all of our lives in many ways. Public transportation, the transportation of fuel itself, our railroads, transportation of foods, and the powering of tractors all depend upon oil-propelled machines.

Mr. Carson states that our victory in two World Wars was, to a large degree, based on our supply of oil products. He states:

> If an abundance of oil was of the essence of victory to the United States and its Allies, the denial of oil to our enemies was of the essence of defeat to them. After Pearl Harbor, the Japanese did reach the oil sources of Borneo, Java, and Sumatra. But our naval forces—especially our submarines—almost severed the sea-borne line of communications that ran from the oil-bearing islands to Japan. Hence Japan, unable to base the bulk of its fleet in home ports, had to violate the principle of strategy which dictates that you must never divide your forces in the face of a superior enemy. A large part of these forces was stationed close to the sources of Dutch Indies oil at Lingga Roads, at Leyte. And here Japan's fleets were defeated. The end of the war in the Pacific was then in sight.

It is noted by Mr. Carson that this same shortage of gasoline helped to defeat Germany. So serious was the shortage of gasoline that at times tanks and armored vehicles were moved to the front by oxen.

THE oil industry was termed "extraordinarily dynamic" and it was stated that 37 billion barrels of oil and natural gas liquids are now in proven reserves as contrasted with about 19 billion in 1940. This is such a huge reserve that Mr. Carson cites the following example to give some scale to the figure of 37 billion barrels of proven oil and gas reserves. A container to hold such a sea of liquid would require a tank one square mile in cross section and 7,401 feet high —five times the height of the Empire State building. The liquid from such a container would fill up a pipeline to the moon—a pipeline 15 feet in diameter and 238,850 miles in length. It is true that each year we draw off huge supplies of our oil reserve; however, new discoveries constantly boost the available reserves.

Mr. Carson urges that we use oil wisely, however. He notes that an economic and political climate must be maintained which will continue to stimulate the finding of oil. He believes that our children are the hope of the future and that their hopes will be fulfilled if we leave to them a heritage of a bountiful supply of energy fuels. He said:

> Oil is the essence of empire and the demand on the oil industry will be of empire proportions as it strives to provide its share of the nation's energy needs. As we look back over two World Wars and the prodigious growth of our nation we must realize anew with what foresight President Coolidge wrote in 1924 that "The supremacy of nations may be determined by the possession of available petroleum and its products."

If we reflect on the numbers of ways that oil and oil products enter into our lives and into the life and health of the nation we can appreciate Mr. Carson's concern for giving our children a bountiful supply of energy fuels for future use.

New Method for Teaching Languages

AMERICAN educators and statesmen have become increasingly aware of the language barrier which exists when Americans mingle with persons of other nations. The United States is one of the few great land masses which has a unifying language. Countries such as Russia and China have so many variant language groups, so many dialects, that one is reminded of the Biblical Tower of Babel. Countries such as France, Italy, Germany, and Switzerland come into constant contact with other languages and their schools stress language study since it is essential for commerce. Such countries abound in bi- and trilingual persons.

The United States, on the other hand, with its single predominant language, offers little opportunity for students to practice conversation. Indeed, in the past there has been slim reason for most students to "plug away" at language studies when little opportunity presented itself for such foreign language use. Today, however, U. S. students are suffering from our single-language use and the need for bilingual citizens is on the increase. Increased commerce with foreign nations, U. S. interests in foreign countries, increased tourist travel, and superfast jet transportation have all added to the demand for persons who can speak more than one language.

Educators have sensed this growing need and various programs have been initiated to fill the growing gap. In a good many schools foreign languages are now being taught in the elementary classes. Prominent educators have urged that the two-year language requirement in high school academic courses (required in most high schools) should be increased to three or four years of study in the same language. Various television stations in the nation have been, in conjunction with institutions of higher learning, broadcasting foreign language courses. In Washington, D. C., for instance, a course in Russian has been offered over TV. College credit was extended to those persons who registered and passed the examinations at the end of the course.

THE Houston, Texas, *Chronicle,* in September carried an article by Mary K. Herolz which describes the method used in the Spring Branch School District to teach foreign language skills. Thirty "lab" units have been installed in each of the school district's three secondary schools. The "lab" method is the outgrowth of a formula pioneered during World War II by the Institute of Languages, Georgetown University, in cooperation with the Defense Department in Washington, D. C.

Under the new "lab" program a student spends about twenty-five minutes of a 55-minute class period in regular "book" study. The remainder of the class period is spent with each student in his individual broadcast booth. Earphones are put on and an individual magnetic tape recorder is then adjusted. From a master monitor at the front of the room the teacher conducts the "lab" lesson. Should the instruction be in Spanish the teacher would begin with "Buenos Dias"

The March of Events

Canadian Gas Flow Seen

COMPELLING economic demands for more natural gas will ultimately force the Canadian and U. S. governments to work out methods for a free flow of natural gas from Canada to the United States. This is the prediction of the National Planning Association, a private research organization. A report prepared by a seven-man committee under the chairmanship of Charles A. Perlitz, Jr., executive vice president of Continental Oil Company, declared that by 1970 natural gas may provide one-third of the total energy needs of the U. S. and Canada. It said the gas needed to meet this demand is available.

Up to now the principal reasons for the inability to get big across-border flows of gas has been the Federal Power Commission, which regards Canadian gas a mere supplement to U. S. needs, and the Canadian government, which is reluctant to export its energy fuels. Companies in Canada have a surplus of gas, however, and are eager to sell it in U. S. markets once the green light is given.

Huge Coal Pipeline Planned

EASTERN electric utilities are watching with considerable interest the announced plan of Texas Eastern Transmission Corporation, which is exploring the possibilities of transporting coal from West Virginia to the eastern seaboard via a pipeline that would deliver about 8 million tons of coal a year. This represents half of the combined needs of four utilities which have expressed interest in the project. They are New York's Consolidated Edison, New Jersey's Public Service Electric & Gas Company, Philadelphia Electric, and Pennsylvania Power & Light.

Partner in the plan with Texas Eastern would be the Consolidation Coal Company of Pittsburgh, which would supply the fuel. Consolidation Coal already has a 115-mile coal pipeline in Ohio, which is the pioneer effort in successfully transporting coal by way of a pipeline. The experience it has gained in this venture should prove valuable if the Texas Eastern plan is put into operation. Substantial transportation savings on coal are expected when the coal pipeline becomes a reality.

AEC Assigns Advanced Reactor Study

THE Phillips Petroleum Company of Bartlesville, Oklahoma, has been assigned the task of performing a conceptual design study of a high-flux test reactor incorporating the most advanced technology available.

The AEC said the purpose of the study is to determine the kind of test reactor

that will meet the commission's needs for neutrons in the high-flux range over and above those needs which can be met in reactors already built or planned. Test reactors provide facilities for the irradiation of reactor materials and components in neutron flux fields under conditions similar to those of reactors for which the components and materials are intended. Neutron flux is the intensity of neutrons in a given area of a reactor.

Phillips has been told to consider more than one design approach in its study in order that the most promising concept may be incorporated in the design.

Outer Continental Shelf Rights of Way

THE Department of Interior has proposed new procedures in outer continental shelf rights of way for oil and gas pipelines. The changed regulations would permit granting of new rights of way across existing rights of way without permission of the holders.

"It is possible for a right-of-way holder whose right of way runs parallel to the coast line to take advantage of present regulations," Edward Woozley, director of the Bureau of Land Management, declared. "By arbitrarily refusing to permit his right of way to be crossed or invaded, he could effectively tie up transportation of production from seaward of his right of way. Such a situation could seriously hamper mineral development on the outer continental shelf."

An applicant for a new right of way would still have to notify holders of the existing rights of way that would be affected, but he would no longer have to gain their permission. However, if the application is granted, holders of affected rights of way could appeal the decision.

Coal Study Bill Killed

PRESIDENT Eisenhower has vetoed legislation which would have set up a federal research and development commission to promote new and wider uses for coal. The President said in a memorandum rejecting the proposed coal commission that the Interior Department already does much of the work that would be assigned to the commission. He said creation of the commission would dilute the department's "established interest in such matters."

The veto was Mr. Eisenhower's 146th since he took office in 1953. Because Congress has adjourned, no move can be made to override it. Senator Joseph F. Clark (Democrat, Pennsylvania) said in a statement that he deplored Mr. Eisenhower's action in rejecting the bill. He noted that it was approved "by large majorities in Congress" and said the veto "sets us back another year in getting this vital [research] program under way."

Mr. Eisenhower endorsed one section of the bill authorizing the Interior Department to contract with private agencies for coal research and recommended that Congress enact it as separate legislation next year.

California

Free Monorail Refused

THE Metropolitan Transit Authority of Los Angeles has had to refuse the offer of a free $800 million, 600-mile monorail transit system because of legal restrictions. Axel Wenner-Gren, multimillionaire Swedish industrialist, who has built monorail projects in several parts of the world, made the offer.

All the city of Los Angeles would have had to provide was the operating franchise and the right of way along five radial

routes. The authority would have retained supervision over the operation of the system.

The monorail envisioned would have had aluminum cars traveling overhead at speeds up to 80 miles an hour with an 800-passenger capacity.

In order to accept the offer, the Los Angeles Metropolitan Transit Authority would have had to own and operate the system, it was learned. Even if a private franchise could be granted, prohibitive taxes would have made the operation economically impracticable.

Colorado

To Reduce Wholesale Gas Rates

COLORADO INTERSTATE GAS COMPANY will file in the near future a new tariff with the Federal Power Commission which would put into effect a reduction of rates for wholesale customers. The reduction to Colorado Interstate's wholesale customers in the Rocky Mountain area will amount to about 11 per cent when the company puts the new rates into effect on November 1st, President W. E. Mueller reported.

As soon as these lower rates become effective, Mueller said further, Colorado Interstate will apply to the FPC for authority to make a refund appropriately reflecting these rate adjustments back to February 4, 1958. This was the last date of the company's rate settlement agreement which resulted in a refund of nearly $39 million last March.

The refund, including interest, will approximate $5.7 million through July 31, 1959.

In connection with the new tariff, Colorado Interstate also is offering its wholesale customers new 20-year contracts. They will replace contracts which are due to expire in 1967.

District of Columbia

Transit Action Program

SEVEN governmental units in the Washington, D. C., metropolitan area have approved a "four-step action program" aimed at improving highway and transit facilities. The steering committee of the Washington Metropolitan Regional Conference voted to recommend that area officials should: 1. Acquaint themselves and their governing bodies with the report of the Mass Transportation Survey. 2. Set up public discussions on the report. 3. Press for congressional approval of the transit regulatory compact already approved by Virginia and Maryland. 4. Establish standards of transportation facilities adequate for future area growth.

The survey report recommended a 99-mile rapid transit system and a moderately enlarged freeway system. Estimated cost of the project would be about $2.5 billion. The survey itself has cost $500,000. It was agreed unanimously that public opinion would have to be solidly behind the Mass Transportation Survey before action could be expected from Congress.

Illinois

Opposes Rate Hike

CENTRAL ILLINOIS LIGHT COMPANY has notified the Federal Power Commission that it intends to oppose the rate hike request of Panhandle Eastern Pipe Line Company. (See page 624.) It feels that in-

creased costs to its customers cannot be justified since there is not an allocation of gas to its area from the increased capacity from the Trunkline expansion. It was this expansion that Panhandle Eastern Pipe Line Company cites as the reason for the rate hike application. However, two gas utility companies in Michigan will receive all of the 135 million cubic feet the expansion makes possible. None will go to Central Illinois Light Company's customers.

Indiana

Rate Boost Sought

A $2.5 million electric rate increase, before taxes, has been applied for by the Public Service Company of Indiana. The company explained to the Indiana commission that wage increases were included in the cost in figuring its revenue requirements.

Public Service pointed out that annual payroll costs have increased 37 per cent during the past five and a half years while state and local taxes have increased 96 per cent.

Also, an increase in the cost of obtaining capital funds was claimed. Public Service estimated the "fair value" of its plant at $525 million. In 1955 the company sought a general rate increase, but the commission rejected it. But after the state supreme court ordered a new hearing, the commission in 1956 increased Public Service of Indiana's rates by $3.6 million.

Missouri

Rate Hike Granted

UNION ELECTRIC COMPANY has been granted an increase in its electric rates by the Missouri Public Service Commission.

The new rates are calculated to yield a return of 5.25 per cent based on a fair value rate base of $409.5 million. The company contended that it should not be required to furnish electric service for resale or for rent inclusion in public housing projects.

The state commission agreed, but because of a conflicting policy already followed by the company, it ordered that public housing projects be exempted from the rule against sale for resale.

The Missouri commission also rejected arguments of intervening minority stockholders which were seeking to limit the right of the company to curtail pre-emptive rights of shareholders to acquire additional shares.

It was further held by the state commission that management properly charged to operating expenses certain sums paid for disbursements as part of the Electric Companies Advertising Program.

New York

Gas Expansion Planned

THE Niagara Mohawk Power Corporation wants authority to build a new gas pipeline in the Massena-Ogdensburg, New York, area.

The utility told the Federal Power Commission that it had the requisite supplies of natural gas and the money to finance the construction of the pipeline which would enable it to sell gas to consumers in this area. Niagara has estimated that the entire project would cost in the neighborhood of $10.5 million in the first year.

A company expert testified that a substantial portion of the necessary rights of way had already been obtained for the pipeline.

However, the St. Lawrence Gas Company, Inc., also has testified before the FPC to show that it can obtain 46 billion cubic feet of natural gas to serve its proposed Massena-Ogdensburg area pipeline project. It wants to import gas from Canada for resale in Lawrence county, New York.

Pennsylvania

Rate Case Bureau Sought

ATTORNEY GENERAL Anne X. Alpern has asked the state legislature for $200,000 to set up a bureau of consumer protection in the Department of Justice. Her idea is to save Pennsylvania millions of dollars in utility rates.

The bureau would act as a sort of "watchdog" and check on various types of rate cases, including those before the state public utility commission, the Milk Control Commission, and the Insurance Department.

Miss Alpern estimates that she can run the bureau for two years on the $200,000 amount she has asked. Governor David L. Lawrence is reported to be back of the plan.

Tennessee

Co-ops Propose New Laws

THE state legislative council was recently told by spokesmen for rural telephone and electric co-ops that they want legislation that would accurately define their areas of service so that they would not overlap with municipal services.

A rural electric co-operative association representative stressed that the main problem faced by his group was competition with municipal distributors. He said he considered it wasteful for both organizations to serve the same areas.

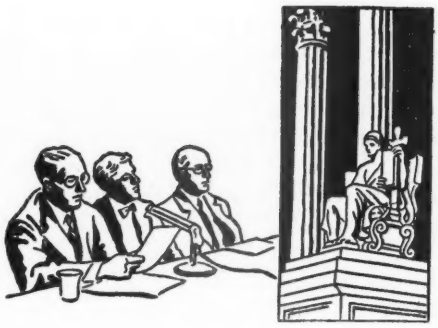
A telephone co-op spokesman also asked for legislation similar to that which now regulates electric co-ops, as well as legislation to help regulate management of the co-ops.

Texas

Less Gas Regulation Urged

UNLESS the natural gas industry is freed from utility-type regulations, there will be a dwindling supply of natural gas, delegates to the Texas Mid-Continent Oil and Gas Association convention in Houston, Texas, were told last month by Gordon Simpson, president of the Independent Petroleum Association of America.

Simpson also declared that the natural gas decision in the Phillips Petroleum Company case created more problems than it settled and raised more questions than it answered. He said this and other decisions by the courts and the Federal Power Commission have compounded the confusion and intensified the need for the early enactment of a natural gas bill. There is little in the present unsettled situation, Simpson added, to encourage the small producer, which historically drills 80 per cent of the wildcats, to explore for natural gas.



Progress of Regulation

Trends and Topics

Rate Questions in Gas Certificate Proceedings

DIFFERING views of representatives of distributing companies and consumers, on the one hand, and representatives of gas producers, on the other hand, as to interpretation of the Supreme Court decision in Atlantic Refining Co. *v.* New York Pub. Service Commission (29 PUR3d 70), commonly referred to as the CATCO case, were aired in discussions at the August meeting of the Public Utility Section of the American Bar Association, and they have been considered in recent court and commission decisions. Questions arise as to the extent of investigation of proposed gas prices in certificate proceedings. Then follows the question as to whether the commission should impose conditions as to prices. Consumer representatives are concerned over certification under § 7 of the Natural Gas Act where customers are in need of a gas supply, but where there may be renegotiation of contracts and triggering of rate increases under escalation clauses. They wish to avoid the delay incident to § 5 rate cases. Producers shun cost-of-service evidence. References to pertinent decisions may aid in examining the controversy.

Recent Court Decision on Price Question

The decision by the U. S. court of appeals for the third circuit on review of the Federal Power Commission grant of certificates to Transcontinental Gas Pipe Line Corporation and others seems to be the latest judicial opinion on this subject. The commission (25 PUR3d 157) had granted certificates to twenty-six gas producers (involving 38 applications), who had made contracts for the sale of gas produced in southern Louisiana and offshore areas to Transcontinental Gas Pipe Line Corporation (Transco). The commission had also granted certificates to Transco to construct additional pipeline facilities to carry the supply of gas authorized by the producers' certificates. The court said there was no suggestion of collusion in the formation of the contracts. They called for prices ranging from 22.4 cents to 23.3 cents per Mcf of gas.

Petitioners for review, including the New York commission, contended that the FPC abused its discretion in not attaching to the producers' certificates

conditions limiting the price to be paid by Transco to a level below that set in the contracts. The court said that the only question was whether it was an abuse of discretion for the commission to grant the certificates without conditioning them as to price. The court noted that in the Signal case (17 PUR3d 226) the court had said that the commission could make its certificate conditioned upon a price limitation but did not say that it must.

Since the Transco case was submitted to the circuit court, the Supreme Court had affirmed the same court in the CATCO case (29 PUR3d 70) and had sent the case back to the commission for further hearing. The circuit court, after discussing the CATCO decision, reviewed the facts in the Transco case and noted the Supreme Court's statement that the Natural Gas Act does not require a determination of reasonable rates in a § 7 proceeding but requires careful scrutiny and responsible reaction to initial price proposals of producers. The commission is also required to "evaluate all factors bearing on the public interest."

The court said that the "all factors" aspect makes these cases hard to decide. Members of a careful and experienced court may divide when an order comes before them for review. Balancing the weight to be given the various factors, the court continued, involves an exercise of judgment, and the reasons which sway that exercise may be hard to articulate in a particular case.

The court then concluded that the weighing of the factors and the conclusion to be reached were tasks for the commission. If the necessary elements were not considered, the error was one of law and subject to court correction; but if they were considered and the conclusion reached was not unreasonable, the conclusion stands whether it is the one the reviewing court would have reached or not. That, in the judgment of the court, was the case here, and the order of the commission was affirmed.

A dissenting judge challenged the view that the result reached by the commission in these cases was a permissible result despite the strictures of the decision rendered by the Supreme Court in the CATCO case. He said that it seemed appropriate to ask whether the commission would have proceeded in the way it did, and reached the result it reached, had the subsequent teaching of the Atlantic Refining case (CATCO) then been before it. He said that case indicated an approach and emphasized considerations which might well have led the commission to a different result, with or without further inquiry as to reasonable rates, in the cases then before the court. *United Gas Improv. Co. et al. v. Federal Power Commission, Nos. 12,797, 12,805, August 4, 1959.*

Views of Federal Power Commission

The Federal Power Commission, in Re South Georgia Nat. Gas Co., Opinion No. 325, August 7, 1959, said that it understood the decision by the Supreme Court in the CATCO case (29 PUR3d 70) held, in essence, that the producers' initial price must be supported by substantial evidence establishing that the price is required by the public convenience and necessity and is in the public interest; that although the commission should consider all factors and has broad discretion in determining whether an initial price is to be so supported,

price is an element of prime importance and the commission must scrutinize the price closely with a view to protecting the consumer and holding the line against price raises.

The commission noted further that the court upheld the authority of the commission to attach price conditions as it might believe necessary. The commission said, however, that as it understood the court's opinion the court did not attempt to prescribe rigidly the quantum of evidence which might be adduced in every case, but indicated what kind of evidence was insufficient; what kind of evidence might or should have appropriately been adduced in consideration of the record there; and thereby, what kind of evidence might or should be adduced in other cases, depending on the factual circumstances present in such cases.

The commission construed the court's opinion as holding that producer certificate proceedings need not necessarily assume the character of rate proceedings under § 4 or § 5 of the Natural Gas Act. The commission then concluded that the requirements laid down by the Supreme Court in its CATCO opinion had been met in the South Georgia case. The evidence established that the proposed initial prices for the producers' sales were in the public interest and the proposed sales were required by the public convenience and necessity. The commission did not think it necessary to attach any initial price condition. The commission did not find that the producer prices were out of line when compared with other producer prices executed in the respective areas in recent years. Reference was made to the Transco decision previously discussed. (The South Georgia case is reviewed further at page 660.)

FPC Action in Other Recent Cases

Similar views are reflected in other recent decisions, reviewed in this department under the subheading "Review of Current Cases." In the Pacific Northwest Pipeline case (reviewed at page 660) the commission did not think a price condition was warranted. (That decision came prior to the Transco decision.) But, in approving a proposal by Transwestern Pipeline Company to transport gas, the commission attached conditions both to pipeline rates and producer rates, after finding that proposed producer rates would establish new high-priced plateaus in two producing areas. It expressed a determination to "hold the line." *Re Transwestern Pipeline Co. Opinion No. 328, Docket Nos. G-14871 et al. August 10, 1959* (reviewed at page 663). The question of producer prices was also discussed in *Re Texas Gas Transmission Corp. et al. Opinion No. 327, Docket Nos. G-17335 et al. August 10, 1959* (reviewed at page 662). The commission allowed proposed initial prices.

The question of price conditions also received attention in the Trunkline Gas Company case (reported in full in 29 PUR3d 1). The commission imposed rate conditions in approving sales by Trunkline to Consumers Power Company; but after careful examination of not only field prices, but also other evidence, the commission granted producer certificates at the contract price without conditions. Great weight was given to the fact that the contracts provided for a firm 20-cent price for ten years, without escalations or redeterminations.

Review of Current Cases

Price Condition on Gas Producer Sales Unwarranted

THE Federal Power Commission, in a certificate proceeding, allowed an initial price of 15 cents per Mcf for gas to be purchased in Colorado by Pacific Northwest Pipeline Corporation. Under a contract with seven producers, the initial price will increase by one cent at five-year intervals. The staff urged a rate condition of 12 cents per Mcf on the ground that a higher rate would result in substantially increased prices in the area.

The commission observed that the particular circumstances in each case are of decisive importance in determining whether a condition should be attached to the issuance of a certificate. Such circumstances include whether the proposed price will cause an increase in other prices in the area, the kind and quality of gas involved, competition in the area, and similarity between the questioned contract and other contracts. The commission concluded that the record in this case supported the proposed price of 15 cents, that such price was not higher than other prices on a comparable basis, and that it would not cause other purchasers in the area to pay more for gas. Nor will the 15-cent price escalate any of Pacific Northwest's other contracts since they do not contain favored-nation clauses.

A price condition was, therefore, rejected as unwarranted. Moreover, the commission expressed the view that the imposition of a condition would interfere with exploration for gas in the area. *Re Pacific Northwest Pipeline Corp. et al. Docket Nos. G-13456 et al. July 23, 1959.*

Gas Pipeline Projects Approved and Certificates Granted Producers without Price Conditions

THE Federal Power Commission has granted certificates to Southern Natural Gas Company and South Georgia Natural Gas Company to construct and operate additional facilities. Southern Natural, serving the mid-South, is authorized to construct additional pipeline, compressor, and appurtenant facilities costing in excess of $52 million, which will increase its delivery capacity by 375,000 Mcf per day. South Georgia Natural, purchasing all of its gas from Southern Natural and serving principally southern Georgia, will construct new pipeline laterals and appurtenant facilities costing about $2 million. Initially, it will receive an additional 36,700 Mcf of contract demand gas per day from Southern, with a subsequent increase in volume.

Ten producers obtained permission to sell the necessary volumes of gas to Southern Natural, mainly from east-central Louisiana and southwestern Mississippi fields, at prices ranging from 19 to 21.5 cents per Mcf, exclusive of tax reimbursement. Competing fuel interests and staff counsel excepted in several particulars to the decision of the presiding examiner, who would certificate the proposals substantially as requested. The commission upheld the examiner generally.

Rate Tilt Question Unresolved

Staff counsel complained that Southern Natural's proposed new rates were tilted to higher demand rates than demand costs and to lower commodity rates than commodity costs. Counsel urged that the com-

pany should be required to justify the tilt before the proposed facilities and sales were certificated. Southern Natural had already filed its proposed rates and the commission had suspended them until November 1, 1959.

The commission ruled that issues raised in connection with these rates, including the question of rate tilt, could most feasibly be considered in the impending rate proceedings. Furthermore, market needs and construction requirements in this case seemed to demand the least possible delay in the issuance of certificates.

Interruptible Sales Complained of

Competing fuel interests complained that Southern Natural's daily capacity would be in excess of its contract daily obligations. They set the excess at 57,000 Mcf of daily delivery capacity, as against the examiner's finding of 35,000. It was argued that the excess capacity would be delivered as industrial gas for direct or resale interruptible sales until firm markets could be found.

The amount of excess capacity resulting from the present proposals appeared to be reasonable within the range the company had experienced in the past. Noting the "disparate character" of the company's system and operations, the commission concluded that the proposed facilities, including those resulting in the excess capacity complained of, were required by the public convenience and necessity.

The commission sustained a further objection to the proposed installation of additional horsepower at a particular station of Southern Natural. The station would not be used for firm peak deliveries but purely to enable the company to deliver interruptible gas largely for boiler fuel.

Economic Feasibility

Also sustained was an objection by the staff to proposed sales by South Georgia Natural to three municipalities having debt service coverage ratios of less than 1.5. The commission observed that it has regarded a debt service coverage ratio of 1.5 as an appropriate index of economic feasibility in such projects as these. Denial of the sales, however, was without prejudice to the municipalities making a better showing of economic feasibility in the future.

Producer Filings

Under § 154.91 (c) (1) of its regulations, the commission refused to permit two producers to withdraw their certificate applications in favor of an amended application by a third producer, a signatory co-owner, to cover all three. The operator of the properties is a signatory party to the sales contract. As the presiding examiner pointed out, the authority granted by the regulations for filing by a signatory co-owner to cover the interest of another signatory co-owner is limited to those situations where the operator is not a signatory party. The commission noted that its regulations pertaining to the filings required by independent producers are under consideration with a view to their revision and improvement.

No Price Conditions Attached

The commission found no reason to condition the initial prices proposed by the producers. The staff urged that the Supreme Court's decision in the CATCO case (29 PUR3d 70) clearly places on producers the burden of sustaining proposed prices. Additionally, it was contended that the Supreme Court, in disapproving the 22.4-cent price in the CATCO case, has, in effect, disapproved all prices found on the commission's approval of the CATCO price, which includes the prices in the instant case. (The commission's opinion as

to price conditions is discussed under Trends and Topics, ante, page 658.)

The commission thought the evidence in this case substantially supported the proposed producer prices. It was shown that they are not out of line with the other prices Southern Natural pays in the same general producing areas. Nor are they out of line with other producer prices in such areas. Furthermore, delivery provisions under the sales contract are favorable to Southern Natural, and the proposed prices will increase the pipeline's weighted average unit purchase gas cost by only 0.05 cents per Mcf—an insufficient increase, in the commission's opinion, to outweigh the benefits of the sales and the projects depending on them. *Re South Georgia Nat. Gas Co. et al. Opinion No. 325, Docket Nos. 9892 et al. August 7, 1959.*

Natural Gas Transportation Service Authorized And Louisiana Producer Prices Allowed

THE Federal Power Commission has granted an application by Hope Natural Gas Company whereby Hope will purchase and produce natural gas in 11 fields in southern Louisiana and have it gathered, transported, and delivered through the facilities of Texas Gas Transmission Corporation and Texas Eastern Transmission Corporation. The gas will be delivered to Hope's own system or to member companies of the Consolidated Natural Gas System for its account. Twenty-four companies filed related applications for certificates.

Hope's application involved no new facilities. It was merely an indirect extension to southern Louisiana to produce or purchase gas for the Consolidated System. The staff raised the question whether Hope's newly acquired gas supplies were adequate to justify the expansion of the systems of Texas Gas and Texas Eastern. Assuming Hope will take 100,000 Mcf per day, as is contemplated, there will be a reserve life index of approximately sixteen years and a deliverability life of over twelve years. The commission held that these deliverability figures, though minimum, would support the proposed expansion, considering Hope's established position and its proven ability to attach new sources of supply. Hope was granted certification as it had already requested.

Transportation Service Rates

Texas Gas Transmission Corporation proposed to construct additional loop lines and supply lines and install additional compressor horsepower at existing stations, increasing its design daily delivery capacity by 100,000 Mcf, all of which will be used to transport gas for Hope. The facilities will cost nearly $40 million.

For this transportation service, Texas Gas would charge a gathering rate of 50 cents demand and 1.7 cents commodity and a transportation rate of $2 demand and 7.4 cents commodity, based on a 6¼ per cent rate of return. The cost treatment of Texas Gas' supply facilities to be constructed in southern Louisiana was questioned. It was urged by Hope, Texas Gas, and others that the costs incurred in connection with these facilities should be borne by Hope. The staff contended that they should be rolled in as a part of the costs of operating an integrated system. The commission ruled that they should be borne by Hope. However, if these supply facilities should at any time be used by Texas Gas to transport its own gas, then they would be required to be rolled in.

It was also held that a single transportation rate containing gathering costs

should be applied, with production costs classified 100 per cent to commodity. In calculating this rate, the rate of return would be limited to the previously established 6 per cent. Any increase in such return would have to await a full showing in a rate proceeding. Fifty per cent of income tax accruals were required to be offset against working capital requirements.

Cost Data Required

Texas Eastern Transmission Corporation proposed to construct new facilities costing somewhat over $2 million for the transportation of Hope gas. A part of the "Little Inch" pipeline, lying between Lebanon, Ohio, and Moundsville, West Virginia, would be reactivated. Proposed compressor facilities in excess of those necessary to provide additional capacity of 100,000 Mcf per day were disapproved.

Also disapproved was a rate of 4½ cents per Mcf which Texas Eastern proposed to charge Hope for transporting gas. The study on which this rate was based had no relationship, in the commission's view, to the cost of the transportation service. As a condition to a certificate the commission required that a satisfactory rate schedule be filed, supported by cost data including a system-wide cost of service with proper allocations between the various services rendered by Texas Eastern.

Producer Prices Approved

Hope will produce about 4 per cent of the gas for its project and the rest will be purchased from twenty-one independent producers which sought authority to sell gas to Hope from fields in southern Louisiana and adjacent offshore areas. Contracts provided for initial prices of 21 to 21.5 cents per Mcf, exclusive of the reimbursement tax. The commission found that these prices were required by the public convenience and necessity. It found that they were the same as, or lower than, other certificated sales in the production area. No price condition, though urged by the staff and the New York commission, was therefore warranted.

The contracts called for periodic increases of one cent every four years and for price redeterminations after eight years in some cases and after twelve years in others. They contained no favored-nation clauses. These prices will not result in immediate increases in Hope's prices, nor will they adversely affect other purchasers in southern Louisiana. No favored-nation clauses will be triggered by the contracts.

The commission discussed the Supreme Court's decision in the CATCO case (29 PUR3d 70) and found nothing there at odds with the producer prices proposed in the instant proceeding. Certificates were, accordingly, granted to the producers, allowing the proposed initial prices. *Re Texas Gas Transmission Corp. et al. Opinion No. 327, Docket Nos. G-17335 et al. August 10, 1959.*

Transwestern Pipeline Certificated and Producer Prices Conditioned to "Hold the Line"

WHILE the Federal Power Commission approved a proposal by Transwestern Pipeline Company to transport natural gas from the Texas area to California, it found it necessary to attach conditions both to pipeline rates and to producer prices involved in the project. The project will be supplied from the Panhandle-Hugoton area of Texas and Oklahoma and the Permian basin area of Texas and New Mexico. At the California-Arizona border near Topock, Arizona, Transwest-

ern will deliver 300,000 Mcf of gas per day to Pacific Lighting Gas Supply Company for resale in southern California. Fifteen producers filed applications in connection with Transwestern's project.

Overdesign Urged in Rate Issue

Transwestern's proposed rates were designed on the basis of the Seaboard (94 PUR NS 235) method of cost classification and provide for a daily demand charge of 13 cents per Mcf and a commodity charge of 32 cents. The California commission, an intervener, contended that the proposed pipeline was overdesigned and objected to such overdesign being reflected in the form of rate. The intervener urged the assignment of 20 per cent to demand and 80 per cent to commodity.

The estimated delivery, as the pipeline is proposed to be constructed, is 300,000 Mcf per day on an average basis or 350,000 Mcf per day on a peak-day basis. It appeared, however, that 640,000 Mcf per day deliverability could be attained when the system is fully powered, with only nominal additions to the investment.

The commission observed that the mere fact that a pipeline may have inexpensive expansibility is not of itself adequate justification to depart from the Seaboard method. However, Transwestern was required to modify its rates.

Minimum Bill and Supply Cost

The pipeline proposed a very high minimum bill with respect to the commodity charge, amounting to 100 per cent annual use of the contract demand of 300,000 Mcf per day. This bill was in addition to the monthly minimum bill of the demand charge. During the first year of operation the customer will take only 280,000 Mcf per day, or 93⅓ per cent annual use of the contract demand, paying for gas it does not receive.

Such a high minimum bill for normal firm service is unknown in the natural gas industry, the commission observed. To permit it would give Transwestern all the protection of a cost-of-service tariff without giving to the public such benefits of the cost tariff as declining rate base or possible lower rate of return. This high minimum bill provision was required to be eliminated, although, to make Transwestern whole, the commission authorized the commodity component to be raised to reflect the lesser volumes actually sold as compared with the annual contract quantity.

Apparently the high minimum bill was at least in part the result of take-or-pay provisions in the pipeline's gas purchase contracts. These volumes aggregate 350,000 Mcf while Transwestern's requirement for several years will be less than 308,000 Mcf. The supply take-or-pay was required to be brought into balance with Transwestern's sales to Pacific Lighting.

Deliverability Life Adequate

Considering the reserves committed to Transwestern under the contracts which are a part of these proceedings, a minimum deliverability of 308,000 Mcf per day for thirteen years was shown. The staff objected to this deliverability life as inadequate for a major new pipeline system such as Transwestern. The commission found it adequate, however, noting that the company's reserves would probably be steadily increased, particularly in view of the fact that its laterals and attached supply and gathering lines traverse and integrate the major portion of the producing areas of the Panhandle-Hugoton and West Texas-Permian basin areas.

Producer Prices Conditioned

Contracts for gas from the West Texas-Permian basin provided for wellhead

sales at initial prices of 12 cents, 16 cents, 19.5 cents, and 21.8 cents per Mcf, and for plant gas sales at initial prices of 18 cents and 21.8 cents. They were for 20-year terms and, except for the plant contracts, provided for a one-cent per Mcf escalation each four years. The 21.8-cent gas was fixed for ten years, escalating to 27.2 cents for the remaining ten years. The 18-cent gas was fixed for the first ten years, thereafter escalating to 20 cents. All of these prices included the prevailing state taxes.

In the Panhandle-Hugoton area, all but two of the contracts were for wellhead sales and provided for an initial price of 23 cents. These contracts were for 20-year terms. The 23-cent price was fixed for the first ten years, escalating to 26 cents for the remaining ten years. Besides these wellhead contracts, Transwestern had a contract for plant gas at the same price and for the same term, and a contract with Cities Service Gas Company for delivery of gas for the latter pipeline on an interruptible basis at a straight 21 cents per Mcf for a five-year term. The producers would pay the severance taxes.

The commission found that the proposed producer prices would establish new high-price plateaus in these two producing areas. Referring to the CATCO decision, it determined to impose price conditions designed to "hold the line." Prices under most of these various contracts were conditioned at prevailing levels between 16 and 18 cents for pipeline quality gas.

Commissioner Hussey dissented to the price conditions in the producer certificates "because of my firm belief that a policy of price differential predicated upon depth ranges would be beneficial in encouraging the search for and development of new gas reserves, without disrupting the established price of gas produced from shallower gas reserves, and, because I feel that the producer prices prescribed in the majority opinion are not sufficient to provide the incentive for such deeper development." *Re Transwestern Pipeline Co. Opinion No. 328, Docket Nos. G-14871 et al. August 10, 1959.*

FPC Not Bound by Time Limitations in Natural Gas Producer Certificate Applications

THE U. S. court of appeals affirmed a Federal Power Commission order granting a natural gas producer certificate without a time limitation. The producer, Sunray Mid-Continent Oil Company, had contracted with United Gas Pipe Line Company to sell natural gas to the latter company over a 20-year period. In applying to the commission for a certificate the producer had asked that the certificate be co-extensive with the term of the contract.

Sunray argued that the commission lacked authority to issue a certificate requiring the sale of larger quantities of gas over a longer period of time than required under the contract without any evidence and a finding that public convenience and necessity so required. It claimed that the commission's refusal to impose such a time limitation amounted to a rewriting of the contract. The court rejected these arguments, basing its action on a former decision (17 PUR3d 188) involving substantially identical facts.

In the earlier proceeding, the court had held that while the commission has authority under § 7(c) and (e) to issue certificates of limited duration under proper circumstances, it is not bound by the time limitations contained in the applications. In that case there had been no showing that such conditioning circumstances ex-

isted. In the present case, there was a hearing which afforded an opportunity to show that circumstances warranted the issuance of a limited certificate, but no showing was made.

Control over Service Abandonment

The court said the real issue in this case was whether a natural gas company might provide for the cessation of its service on a specified future date simply by contracting to sell gas only until that date. The court pointed out that in order to contend thusly it would have to be argued that the commission is bound by the limitations contained in applications and that it can grant certificates only in conformity with the petitions. The court said that if this interpretation of § 7(e) of the Natural Gas Act were correct, the purpose of the act would be defeated. The companies could practically dictate the terms and conditions of each certificate issued by the commission. Applicants have no such rights, according to the court.

A natural gas company, once having entered a field of business affected with the public interest, must submit to those regulations which Congress deems necessary to protect the public. The court noted that the primary purpose of the Natural Gas Act is to provide comprehensive regulation of wholesale distribution to public service companies of natural gas moving interstate. It said that if the commission is to have the power to protect the public against the exploitation of natural resources within the scope of the act, at the hands of natural gas companies, it can only do so by controlling not only the initiation of transportation in interstate commerce, but also by controlling the cessation of such service.

The court said that no single factor in the commission's duty to protect the public could be more important to the public than the continuity of service furnished. It concluded by saying that the commission's powers to order a natural gas company to extend its facilities to establish physical connections and to sell to persons engaged in distribution to the public would be useless if the companies could set, at the initiation of their public service, the date at which they would withdraw, abandon, or cease their service. *Sunray Mid-Continent Oil Co. v. Federal Power Commission, 267 F2d 471.*

Pipeline Company Recovers Amount Deducted by Gas Company for Alleged Deficiencies

THE U. S. district court, on remand, has held that Panhandle Eastern Pipe Line Company should be allowed to recover an amount deducted by Michigan Consolidated Gas Company, which had alleged that Panhandle failed to deliver the amount stipulated in the contract between the two companies, and had, therefore, rendered itself liable for damages for the deficiencies. The court held that Panhandle had met its burden of showing that it had actually delivered the quantity of gas required by a Federal Power Commission order rationing deliveries among the pipeline company's customers during the 101-day shortage in 1948.

The case turned upon the question of whether Panhandle had complied with the commission's curtailment order, based upon a determination of the capacity of the compressor station serving Consolidated during the 101-day period. The court recognized that many factors affect the capacity of a pipeline in a compressor station, factors like the flowing temperature of the gas transported, its specific

gravity, and supercompressibility. To give validity to any pipeline capacity study, the court said, it is necessary to compute a factor to adjust the theoretical computation of the flow formula to reflect the actual conditions during the period under study. Consolidated's study had reflected the adjustment by computing a rolled-in factor. Panhandle, on the other hand, had computed a composite factor based on selected days within the curtailment period.

The court found that Consolidated's calculation was too circular to be valid, and that the composite factors of Panhandle more accurately summarized the adjustment required to reflect actual conditions during the curtailment period. *Panhandle Eastern Pipe Line Co. v. Michigan Consol. Gas Co. 173 F Supp 738.*

Right of Pipeline Company to File Contract Rate Changes Upheld

PACIFIC NORTHWEST PIPELINE CORPORATION had a right to file, and the commission a right to accept, rate increases, both for sales for resale for industrial use and for other sales for resale, the Federal Power Commission ruled, after denying a motion by Pacific Natural Gas Company, an intervening customer, to reject the pipeline's rate filings. The basis of Pacific Natural's motion was a contention that its contract with Pacific Northwest did not permit a change in the contract rate without customer concurrence and that such concurrence had not been given.

The commission found, however, that Pacific Northwest had expressly reserved in its service agreements a "complete and unequivocal" right to make unilateral rate changes in accordance with § 4 of the Natural Gas Act, subject to the buyer's right to protest.

Pacific Natural argued that the rates may be changed in conformance with the Natural Gas Act procedures only after notice and hearing and a determination as to the reasonableness of the changed rates. To so hold, said the commission, would destroy the effectiveness of §§ 4 (d) and 4 (e) and require all changed rate filing proceedings to be processed under § 5 (a) of the act. Pacific Natural further objected to the acceptance for filing of increased rates for gas for resale for industrial use only, since such increased rates are not subject to suspension by the commission. This position was also rejected. Except for the lack of power to suspend such rates, they are governed by the same requirements, and the pipeline has the same right to file them as it has to file rates for other sales for resale, the commission pointed out. *Re Pacific Northwest Pipeline Corp. Docket No. G-13202, July 23, 1959.*

Tax Incentives Figure in Pipeline's Return on Well Mouth Properties; Refunds Ordered

OF a rate increase of somewhat more than $18 million per annum filed by El Paso Natural Gas Company in late 1954, the Federal Power Commission has allowed about $14.5 million. Excess amounts collected under bond since April 15, 1955, must be refunded on the basis of rates determined for the period between April 15, 1955, and December 31, 1957. On the latter date new rate filings were

put into effect by El Paso Natural.

Federal Income Taxes

El Paso was permitted to include in its cost of service taxes calculated on the basis of straight-line depreciation, while actually paying a tax on the basis of liberalized depreciation. The tax saving will be credited to a reserve for deferred taxes to be paid in later years but will be available in the meantime to encourage construction.

In computing its tax allowance for ratemaking purposes, the company eliminated intangible costs and percentage of income depletion claimed for tax purposes on gas in the test year. The percentage of income depletion privilege, which is designed to encourage exploration and development of oil and gas properties, arises from § 613 of the Internal Revenue Code as an alternative to the reasonable allowance standard of § 611, which usually means cost depletion. Congress intended to grant to the producers and not the consumers the advantages of percentage of income depletion. Unlike liberalized depreciation, there is no postponement of taxes, but an outright tax saving.

Section 263 (c) grants a producer an option to deduct as an expense intangible well-drilling costs. Again, Congress intended to encourage exploration and production. To the extent the taxpayer employs percentage of income depletion with respect to the output of some particular well, said the commission, it is able to obtain a deduction for depletion undiminished by the fact that it has in past years deducted its intangible well-drilling costs as an expense. It thus obtains a tax saving.

Rate Base

The presiding examiner included in the rate base an amount representing loans and advances for gas purchase contracts, made for the purpose of developing properties. The commission agreed that these were proper items for inclusion, noting that they represent an investment for a necessary utility purpose in view of the ever serious problem of obtaining new reserves of gas.

Working capital was determined on the basis of one-eighth of annual operating expenses (exclusive of purchased gas costs), representing a 45-day lag of revenues over expenses. Average materials and supplies and prepayments were allowed. The sum of these amounts was offset by 65 per cent of the actual income tax, after taking into account accelerated amortization, liberalized depreciation, percentage of income depletion, and intangibles. These tax privileges, the commission pointed out, should inure to the benefit of El Paso. They do not belong to the consumers and, therefore, should not be offset against the working capital requirement.

Rate of Return Unchanged

An overall rate of return of 6 per cent was allowed in the 1954 El Paso rate proceeding. Offering no evidence of rate of return, the parties here adopted 6 per cent as fair and reasonable, and the commission saw no reason to depart from this figure. The commission applied this percentage, however, to El Paso's properties beyond the well mouth. Well mouth properties, it was pointed out, must be treated differently since Congress intended to give gas producers the benefits of the special tax incentives relating to intangibles and percentage of income depletion. Such benefits, said the commission, represent contributions by the customers, may be properly considered as return, and, therefore, should be taken into consideration in determining an allowable return and rate of return.

Applying these benefits to that portion of El Paso's rate base represented by the well mouth properties, the commission found that it resulted in a rate of return of 8.61 per cent. Allowing a 6 per cent rate of return on the company's other properties would afford El Paso, according to the commission, an overall rate of return of 6.35 per cent on its entire rate base.

Commissioner Hussey, dissenting in part, noted that the majority opinion would grant El Paso a return on producing properties roughly equivalent to the tax savings obtained by expensing intangible well-drilling costs. He pointed out that the tax incentives designed to compensate for the inordinate risk in the gas-producing business are intended as additional return over and above a normal return. "No one," he declared, "goes into business merely to accomplish a tax saving."

Allocation Questions

El Paso constitutes an integrated system, obtaining supplies in the San Juan and Permian basins and delivering gas to customers in Texas, New Mexico, Arizona, and California. The commission agreed with the presiding examiner that the system-wide method of allocation of costs was appropriate in this proceeding. The system would be treated as a unit, allocating costs irrespective of the source of gas and irrespective of the distance traveled.

The factor of distance, however, would be given effect in the rate design, with rate differences for various zones.

The commission approved the classification of all production and gathering expense to commodity. Fixed transmission costs, including depreciation and amortization, taxes, and return, were classified 50 per cent to commodity and 50 per cent to demand. Storage and distribution costs were assigned generally on the same basis.

The presiding examiner selected two peak periods for allocating demand costs, one period for the Texas, New Mexico, and Arizona customers, and the other for California customers. The staff urged the use of a coincident maximum peak which occurred on February 8, 9, and 10, 1956. To select a peak day for one group of customers and another peak day for another group of customers is arbitrarily artificial and perhaps discriminatory, said the commission. To fairly allocate costs among various groups of customers taking at various load factors and under various conditions, it is essential to choose a maximum coincidental peak and apply it to all customers.

The rate design essentially followed that of the 1954 rate proceeding, with uniform increases to make up deficiencies below allocated cost. Two different sets of rates were provided for the California customers, the second set taking into consideration substantial changes in volumes of gas taken by these customers beginning about January 1, 1956. *Re El Paso Nat. Gas Co. Opinion No. 326, Docket No. G-4767, August 10, 1959.*

Intercorporate Transaction Frowned Upon by Commission

THE California commission, in an order authorizing a water company to increase its rates so as to produce a return of 6.5 per cent on the net investment rate base, put the company on notice that it frowned upon the repurchasing of main extension contracts from the company's parent. Although no adjustment to the rate

base was made in the proceeding to give effect to repurchasing from the parent company of the extension contracts originating with the utility, because the effect on the ratepayers of the district involved was negligible, the commission noted that such transactions result in a profit to the absentee parent company which the subsidiary company had capitalized. Such a repurchasing arrangement by affiliated companies, said the commission, can have a tremendous effect on the net revenue and, although the adjustment in the present case was negligible, it could not be overlooked. Therefore, it was deemed advisable to place the subsidiary on notice that such type of associated company transaction constitutes improper use of an affiliate to the ultimate detriment of the ratepayer. *Re Citizens Utilities Co. of California, Decision No. 58851, Application No. 40665, August 4, 1959.*

Mandamus Not Proper

THE U. S. court of appeals held that the extraordinary cause on which a writ of mandamus should be issued had not been shown in a case involving a pipeline company's motion for a change of venue, which had been denied by the district court. The original action had been instituted by a Michigan gas company against a pipeline company for damages based on the pipeline company's refusal to sell gas to the plaintiff. The court of appeals held that the affidavits and exhibits did not show a clear abuse of discretion or a usurpation of judicial power in the district court's order denying the motion for a change of venue.

The pipeline company had alleged that it would not be able to obtain a fair trial before an impartial and unbiased jury in Michigan because of adverse newspaper publicity. It had also maintained that a change of venue would be more convenient to witnesses. Such contentions were not enough to warrant the extraordinary writ, said the court, or to bypass the statutory procedure for appealing from a court determination. *Panhandle Eastern Pipe Line Co. v. Thornton, 267 F2d 459.*

Commission Refuses to Change Telephone Exchange Boundaries

THE Missouri commission denied a petition requesting it to modify the existing boundary lines designating the exchange areas of two telephone companies so as to include the petitioners within the exchange of one of the companies. The commission referred to its long-standing policy that telephone companies should have secure and definite exchange boundaries in order to assist them in their financial and engineering planning to provide the best service under the most economical conditions that are possible.

The necessity for the payment of toll or long-distance charges for service, said the commission, or avoidance of the payment of the same, does not constitute any sufficient basis or compelling reason for changing or altering exchange boundaries. The boundaries of the two companies had been set duly and lawfully with the approval and sanction of the commission. *Bartz et al. v. Kingdom Teleph. Co. et al. Case No. 14,157, August 12, 1959.*

Customers' Expenses Imposed on Gas Company When Service Discontinued

THE Wisconsin commission authorized a gas company to discontinue service in a municipality. The company had introduced evidence of continued operations at a loss, declining demand for service, and availability of alternate sources of service.

The commission found that the requested abandonment was consistent with the public interest, but imposed certain conditions in the order.

Customers who would elect to change to bottled gas, ordered the commission, should be paid by the company for the cost of converting utilization equipment and installing bottled gas piping. Customers who choose to change to electric utilization equipment should be paid for the enlargement of and new wiring, installation of the equipment, and the remaining value of the utilization equipment. The company was directed to remove all meters and utility-owned equipment on the customer's premises and to remove the service pipe or cap at the building wall. The company was also directed to purge or otherwise remove all gas from the mains which were to be abandoned. *Re Lake Superior Dist. Power Co. 2-U-5216, August 25, 1959.*

Substitution of Natural for Liquefied Petroleum Gas Authorized

THE Wisconsin commission authorized a gas company to substitute natural gas for liquefied petroleum air gas. The company was also authorized to expend money to convert customers' utilization equipment, reconstruct the existing distribution system, and add facilities to take care of an estimated increase in the demand for gas.

The evidence showed that the substitution would not substantially impair the efficiency of the service, would not provide facilities unreasonably in excess of probable future requirements, and would not add to the cost of service without proportionately increasing the value or available quantity. *Re Northern States Power Co. CA-3767, August 25, 1959.*

Other Recent Rulings

Supplier Increase Offset. The Missouri commission authorized a gas company to increase its rates so as to produce a return of 5.45 per cent on the fair value rate base in order to offset a supplier increase. *Re Missouri Power & Light Co. Case No. 14,171, August 18, 1959.*

Exculpatory Clause. The U. S. Supreme Court held that an exculpatory clause in a water carrier's tariff filed with the Interstate Commerce Commission was not void as a matter of law as violative of public policy. *Southwestern Sugar & Molasses Co., Inc. v. River Terminals Corp. 3 L ed 2d 1334.*

Utility Leases. The New Jersey commission held that a public utility need not obtain its permission to lease property

from others in the ordinary course of business since that is a matter within the province of management. *Re Hillsborough Water Co. et al. Docket No. 11369, August 11, 1959.*

Borrowing Rate for Telephone Equipment. The Alabama commission authorized a small telephone company to borrow $115,000 from Stromberg-Carlson, mainly for the purchase of equipment for dial operation, at 6 per cent interest, with a one per cent commitment fee per year on the unused portion of the loan. *Re Valley Head Teleph. Co., Inc. Non-Docket 1789, August 5, 1959.*

Stock Sale Price to Parent. The North Carolina commission approved a proposed sale of common stock by a telephone company to its parent corporation at a price of $21.75 per share where the over-the-counter bid price for the company's common was $23.50 per share and the book value of outstanding shares was $16.05 per share. *Re Central Teleph. Co. Docket P-10, Sub 108, August 5, 1959.*

ICC Jurisdiction. The U. S. court of appeals held that the issue of the intent and effect of a rate reduction claimed to have been taken pursuant to procedure set forth in an agreement approved by the ICC under the Interstate Commerce Act, must, in a case where such issue is the sole or dominant issue, first be referred to the commission prior to a court determination of whether such rate reduction violates the antitrust laws. *Atlantic Coast Line R. Co. et al. v. Riss & Co., Inc. 267 F2d 657.*

Jurisdiction to Review. The U. S. court of appeals held that its extraordinary jurisdiction to review by the common-law writ of certiorari the interlocutory orders of the district court should be exercised only in very limited and unusual circumstances. *Atlantic Coast Line R. Co. et al. v. Riss & Co., Inc. 267 F2d 659.*

Hearing Required. The U. S. district court held that an Interstate Commerce Commission order vacating a previous rate suspension on a specific commodity was invalid where it had been entered without an opportunity for protesting parties to be heard. *Atlantic Coast Line R. Co. et al. v. United States et al. 173 F Supp 871.*

Confession of Error. The Indiana appellate court held that the neglect of an appellee to file a brief controverting the errors complained of by an appellant may be deemed to be a confession of such error, or errors, and the judgment may, accordingly, be reversed and the cause remanded without prejudice to either party. *Re Chicago, M., St. P. & P. R. Co. 159 NE2d 288.*

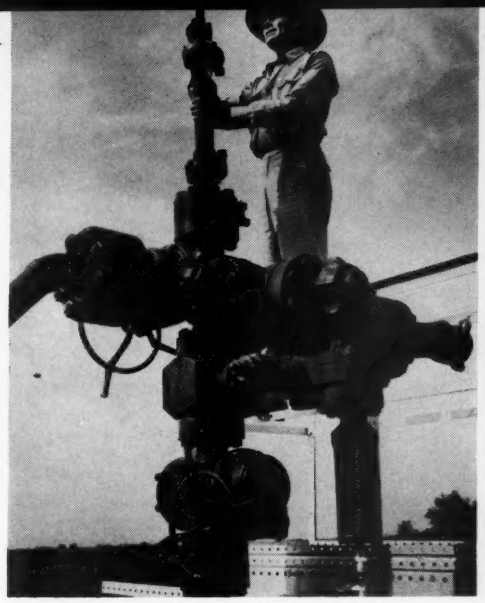
Transit Rate Increase. In authorizing a transit rate increase, the Louisiana commission held that the resulting operating ratio of 91.34 per cent would not yield excessive profits. *Ex Parte Westside Transit Lines, Inc. Docket No. 7891, Order No. 7886, August 4, 1959.*

Sewer Plant Return. The Wisconsin commission considered reasonable a return of 5 per cent on a municipal sewer plant's rate base comprised of the cost of the system, less contributions in aid of construction, plus working capital. *Re Village of Sharon, CA-3757, August 21, 1959.*

he Unlimited Horizons of the Natural Gas Industry

In response to requests for statements as to the present and future programs of their respective companies, an impressive total of executives and other officers of natural gas utility organizations all over the United States have participated in the following impressive collection of thoughtful and optimistic messages.

FRANCIS X. WELCH, *Editor*



Familiar gas well "Christmas tree" getting a pressure gauge check. An ever recurring scene typifying the forward march of miles of natural gas lines across the nation.

Photo Courtesy Texas Eastern Transmission Corp.

HE dynamic growth which has characterized the expansion of natural gas industry since the end World War II, is clearly going to h new heights of production and s during the current year of opera- Noting the theme of the 41st ual convention of the American Association—being held this year hicago, October 5-7—"New Hori- for Growth and Service," this tor decided to tap a vein of ma- l for publication which was very luctive for our special gas con- ion issue a year ago. To get a line what the top leadership of the gas panies is thinking about, what is g done and planned during this ortant period of expansion (to say ing of inflation), letters were tten to the various company ex- ives. They were asked to con- ute views and comments about r own companies' operations, in a d format. Among items suggested e present and future construction. rts to balance supply and demand plans, if any, for developing a er relationship between heating and the firm supply. This, of course, would include discussions of any plans pending or in prospect for local storage or seasonal load promotion. In short, we wanted to find out about any programs either in the works or in the planning stage which these top men in the operating field might want to tell us about for publication. The response was spontaneous and thought-provoking.

These officials appeared, for the most part, not only willing but eager to discuss the operations showing a clear zest for meeting the challenge for serving America's 31,800,000 gas customers better and in a more varied manner than ever before. Of course, all of our executive and other officer correspondents did not take the same line. There were those who were inclined to dwell on successful operation completed or difficulties well in hand. There were others more concerned with current problems and what is being done to meet present customer demands and there were those who obviously looked to the future enthusiastically either in terms of a specific proposal or broad overall expectation. And there were a number who covered a combination of these viewpoints—past, present and future.

But if we add them all up, they reflect a most impressive vote of confidence in the resourcefulness of the gas industry in meeting the varied and increasing demands for service. And so, this collection of communications from gas company presidents and other officers which follows may well be read as a tribute to an outstanding public service industry and the men who have the serious responsibility of seeing that it measures up to its own proud tradition. The collection also shows a resolution to keep the natural gas industry of America expanding by fulfilling all present obligations of public service and providing an adequate reserve for the future. The gas industry of the United States—even back in the days of manufactured supply—has never been found wanting even under the most trying circumstances of war and economic stress. That will be true in the future as these messages of industrial faith and purpose clearly indicate. The statements follow in alphabetical sequence according to company name:

American Natural Gas Company

New York, New York
RALPH T. MCELVENNY, *President*

ERICAN NATURAL GAS COMPANY system has had to cope with endous seasonal fluctuations in during the last decade in its ef- to satisfy the great public demand for gas heating. In the last five years approximately 410,000 heating customers have been added to the system's load, including 343,000 by the system's two distributing companies and the balance by the nonaffiliated distributing companies. The demand for heating gas continues unabated.

The two distributing subsidiaries,

(*Continued on Page* 28)

Michigan Consolidated Gas Company and Milwaukee Gas Light Company, have had to meet winter peak day sendouts which are seven to eight times greater than normal summer day demands.

At the same time the two pipe line subsidiaries, Michigan Wisconsin Pipe Line Company and American Louisiana Pipe Line Company, have had to operate at almost 100 per cent capacity every day of the year to fulfill annual obligations to their affiliates and other distributing customers.

American Natural has solved most of this load balancing problem through the development of underground storage.

Since 1948 Michigan Consolidated has converted five nearly depleted Michigan gas fields to storage reservoirs with a total working capacity of about 110 billion cubic feet. The largest field, Six Lakes, is used by Michigan Consolidated and the other four are leased and operated by Michigan Wisconsin.

Michigan Consolidated has also acquired and is acquiring interests in several other gas fields which can be converted to storage when more gas becomes available.

American Louisiana delivers gas directly to Michigan Consolidated at Detroit and to Michigan Wisc in the southwest corner of Mich This gas can be routed to st through the integrated system.

The system is so designed that tributing customers can also help ance their loads through the sal gas to industry on an interrup basis. In the event of extreme weather or other emergency, the tributors can interrupt service to customers to meet the needs of users. Thus through storage and terruptible sales, the maximum ume of gas is sold to all consu and the domestic user is protecte his heating and other firm servic

Baltimore Gas and Electric Company

Baltimore, Maryland
J. THEODORE WOLFE, *President*
Balance Between Gas Supply and Demand

WITH only minor exceptions, our company has always been able to meet, without delay, the demands of its customers for gas, and we expect to continue to meet them. For us, therefore, the problem of balancing supply and demand is an economic rather than a physical one.

Since our change-over to natural gas in 1950, our heating load has grown at a steady and substantial rate until it is now nine or ten times what it was before the change-over. While our pipeline supplier has been willing and able to meet our requirements, the growing heating load presents an economic problem because of the that we buy natural gas under a t part demand and commodity rate. have been coping with this prob in two ways:

First, by "peak shaving." former water gas manufacturing cilities were converted to high Bt

100 YEARS
of Gas Service in Des Moines

The year past has been a year of anniversaries at Ipalco. 100 years ago the original predecessor company began gas service in Des Moines. It also marked the 75th anniversary of the city's first electric company—also an Ipalco predecessor.

As the Company enters its second century of service, management dedicates itself to continued use of modern technology and business methods so as to maintain its unbroken record of over 50 years of continuous common stock dividends. The Company now serves over 167,000 electric and 87,000 gas customers in Central and Southwest Iowa . . . where a balanced agricultural and industrial economy provides a strong basis for growth.

A copy of our 1958 Annual Report is yours for the asking.

IOWA POWER and Light Company
823 Walnut St. Des Moines, Iowa

MR. PRESIDENT...

You've heard it said many times that "What the gas industry needs is a trade character" . . . a character who can help in the highly competitive battle for the consumer's fuel dollar. Speedy Therm is the only gas character who can't possibly be mistaken for a drop of water, oil, puffed rice or anything else because he has G-A-S written all over his face. And Speedy brings you a monthly service featuring hundreds of drawings in a wide variety of poses. Hire Speedy Therm *now* to help your company in the battle of fuels.

For More Information, Write
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production and are still able to take of 30 per cent to 35 per cent of sendout on a "design day." Our ies indicate that it will be eco- ical in the near future to augment present "peak shaving" facilities we expect to do this by the de- pment of some form of natural or propane storage. Whatever od is selected, a substantial capi- nvestment will be involved.

Second, by developing off-peak or seasonal load. The tariffs of our pipeline supplier do not permit the sale of natural gas for large volume boiler fuel use, but we have been able during the past two or three years to develop a quite substantial amount of industrial processing load which is interrupted at any time between November 15 and March 15, when it would otherwise involve an increase in our demand for natural gas or the operation of our peak shaving facilities. In common with many other gas utility companies, we are enthusiastically undertaking the promotion of gas summer air conditioning; and while we are still in the early stages of this promotion, we are quite optimistic as to its potential.

Boston Gas Company

Boston, Massachusetts
E. H. EACKER, *President*

ATURAL gas became available in New England in 1951-1953. e that time with new promotional s and intensified sales efforts the England gas companies have year increased their annual load s. This load gain has come pri- ily from house heating. But unlike situation in some sections of the ntry the New England companies to the competitive situation must y sell house heating . . . they have estrictions on house heating and have no waiting lists.

he two pipe lines supplying New England thus far have been able to supply the firm load volume desired by the distributing companies. Both of these lines have storage facilities within about five hundred miles of Boston, but the New England companies are not blessed with known geological formations in their own areas which would make it possible for them to develop their own underground storage facilities. Accordingly, winter peak shaving service from the two pipe lines is of great interest to us. The before-mentioned storage facilities of the pipe line make feasible such winter peak shaving service. Although we cannot develop our own underground storage we feel fortunate in having the pipe lines storage as near as it is.

Our distance from the producing fields and pipe line storage fields together with the severity of our winters calls for constant appraisal of peak shaving and standby possibilities.

Research in the fields of storage and manufacturing processes are of great interest to us, for we look forward to many years of continuing load growth.

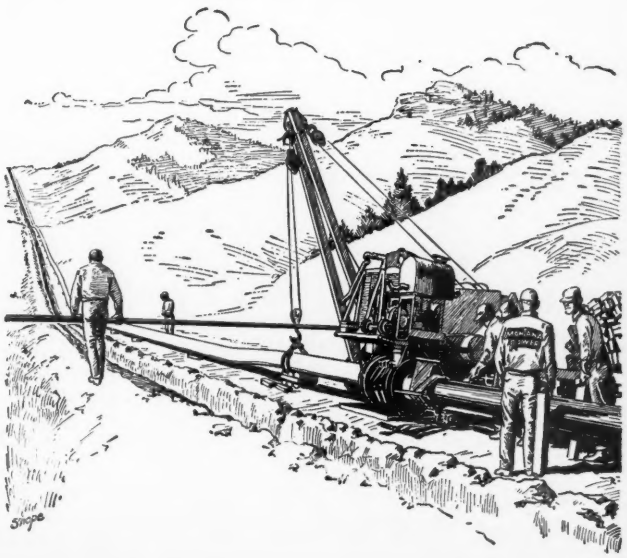
(*Continued on Page* 30)

We Have Added a Third More Gas Customers in 3 Short Years

Montana, Canada, Wyoming Supply Needs for Fuel

Expansion of our natural gas system, which includes nearly 1,300 miles of transmission line and 850 miles of distribution mains, has enabled us to serve one-third more customers in the past three years—great growth for a great state. We now provide gas for about 60,000 customers.

PIPELINE CREWS conquer prairies and mountains in Montana to bring modern gas to users.



THE MONTANA POWER COMPANY
Serving a Growing State

Central Electric & Gas Company

Lincoln, Nebraska

COL. L. D. DENSMORE, *Vice President and General Manager*

NOTWITHSTANDING Central Electric & Gas Company's high base load saturation and, the similarly high saturation of domestic, commercial and industrial space heating load in the moderately severe winter area of Nebraska and South Dakota, the company has the same problems of seasonal gas sales fluctuation as are common to practically all gas distributors having substantial space heating loads.

Relief from the problems of short seasonal gas sales fluctuations through use of gas operated comfort cooling equipment has been sought by the company since the first residential air conditioner was installed in 1947. Installations of gas comfort and process cooling equipment since that time, along with important installations scheduled to be made within the next year, will provide the equivalent of approximately one ton of cooling for every 16 meters.

While the results are not yet stantially significant when comp to the overall potential, increas more active effort is being chan into the company's gas air condi ing program and program plan with the ultimate goal of very terial improvement in summer nues in addition to an almost com absence of plant additions norm associated with new business.

Central Hudson Gas & Electric Corporation

Poughkeepsie, New York

ERNEST R. ACKER, *President*

THE problems involved in selling gas at a profit in the face of increasing costs and a competitive fuel market are the principal concern of northeastern distributors such as Central Hudson.

The expansion of producer and pipe line facilities following removal of the uncertainties created by the Memphis case is providing an ample present supply of gas to distributors but the rates they must pay for it are steadily increasing. High construction and operating costs at present wage and price levels are likewise forcing up the distributors' fixed charges and local operating expenses.

The ample supply of competing fuels is holding down their price and encouraging vigorous selling by their dealers.

Under these conditions the northeastern gas distributors must exercise close control of their costs and use effective selling effort to exploit every profitable market for gas.

At Central Hudson a careful survey of our potential market for off-peak seasonal sales disclosed about two dozen prospective purchasers of whom three have been connected so far. This has already raised our total summer sales more than a quarter and further sales effort should double our summer output to consumers over its amount prior to development of this seas business. In the meantime a high factor on our purchases of gas favorable commodity rate is m tained by its seasonal use as our boiler fuel in generating electricit

The domestic customer, and pecially the domestic househea customer, remains the main sourc revenue to support our business though there is no price differe favoring its choice in our terri customer preference for natural as fuel for househeating and w heating is evidenced by its use i most all the new residences structed in our territory where available. We are taking advantag this preference to promote change-over to gas from other f in existing houses along our m and to extend our service into rea ably compact housing developm being constructed by specula builders who have the capacity resources to complete their proj

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Central Illinois Public Service Company

Springfield, Illinois

J. R. BRODERICK, *Vice President*

CENTRAL ILLINOIS PUBLIC SERVICE COMPANY has been operating under a limitation order of the Illinois Commerce Commission for approximately 13 years, under which attachment of space heating loads for residential purposes is made to a waiting list of applicants in chronological order. We are not permitted under this limitation order to furnish firm space heating loads for any customers other than single dwelling residential establishments, nor can we furnish firm gas for large commercial and indus loads. Although our residential s heating saturation is approxima 60 per cent, the waiting list of resi tial applications for space heatin now larger than ever. We have is permits for residential space hea from time to time as additional plies of gas have become available. have augmented our gas prop with the installation of propane peak shaving plant which permi the issuance of some additional

al space heating permits. We also ined a small supply of pipe line in 1958 which temporarily elimi- l the waiting list of residential heating applicants for one small ly area.

e have been expecting since the of the year to receive a supply ditional gas from one of our pipe suppliers. This amount of gas increase our peak day supply by er cent and will reduce the num- of waiting applicants by over 50 ent. There is also a chance of an ional supply of gas in 1960 from a new pipe line being constructed through our area.

Because of the possibility of the pipe line companies furnishing all of our peak day requirements being so remote, we are now actively engaged in exploratory work for underground storage. Two favorable sites are now being studied and tested and if proved successful will go a long way in eliminating the residential space heating waiting lists by the next year or so. These facilities, if successful, will also permit us to begin accepting commercial and industrial space heating loads.

The Cincinnati Gas & Electric Company

Cincinnati, Ohio

MILTON J. PFEIFFER, *Vice President, Gas Department*

HE Cincinnati Gas & Electric Company recently celebrated its Anniversary as a natural gas dis- ting company, it connected its 00th gas customer, and it com- d the construction of a 50,000 d peak shaving plant including a d cavern for propane storage.

he fact that Cincinnati has had al gas for 50 years has contrib- to a high degree of market ation for cooking, water heating, e heating and many industrial commercial applications. The any is, however, still looking for business in all fields where gas be used to the customer's ad- age. It does all it can to make it for the customer to get, pay for, use its service. A customer can for his gas service installation r the company's time payment he can pay for the gas he uses r the company's budget plan, he buy air conditioning equipment r the company's "cool on time" and he can get around-the-clock ce on his gas appliances under company's free service plan. But s efforts to obtain and please its omers, C. G. & E. Co. has been g very special attention to those cular uses of gas which serve to est advantage and are easiest for pro ide and pay for. In general s this includes, in order of pref- ce, summer load, winter offpeak and year round high load factor ness. The existing market for e heating is approaching satura- and gas heating is being specified ractically all new homes con- ted in its expanding gas service with little promotional effort on ompany's part. This has made it ble and advantageous for the department to devote its major ts to the securing of the preferred types of business previously mentioned. The first choice in this category is summer load, and the greatest potential market for summer load is gas air conditioning. The company is actively promoting the sale of gas air conditioning equipment for residential, commercial and industrial use. Other types of summer load the company has been securing in substantial volume include asphalt paving plants, large volume water heating and process steam generation. Its most important summer load from the standpoint of current volume is that obtained from about 30 large industrial and commercial customers under a summer offpeak rate. Most of these customers use larger volumes of gas during the summer months because of the comparatively low summer offpeak rate rather than because of seasonal variations in their fuel needs. When the offpeak season is over these firms automatically go on a higher winter offpeak rate under which they use gas throughout the winter subject to curtailment during periods of peak demand.

The company is fortunate in being located in a section of the Ohio river valley that has developed into a highly diversified manufacturing area. The area is showing a very rapid industrial, commercial and residential growth. This has necessitated an unprecedented construction budget for the extension and reinforcement of the gas system. With its expanding potential market the company will continue to look for new business in all fields and at the same time give special attention to those uses for gas which will keep its annual volume climbing at least as fast as its peak day demand.

(*Continued on Page 32*)

SAFE
OPERATING PRACTICE

Connecting gas services safely, without loss of gas has been a prime requisite to the great majority of gas utility management. The Mueller No-Blo®Method, now in wide use throughout the gas industry, has proven to be a simple safe procedure for making service connections, running laterals, making stop-offs and other jobs in a safe No-Blo manner, without escape of gas.

A complete line of No-Blo fittings and drilling machines and line stopper units of varying sizes permits a gas utility company to perform its work in a safe manner.

If you are unfamiliar with the Mueller No-Blo Method and its related equipment, contact your local Mueller Representative. He will be happy to refer you to other companies who are taking advantage of Safe Operating Practice by using Mueller No-Blo machines and fittings.

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Consolidated Edison Company of New York, Inc.

New York, N. Y.
CHARLES E. EBLE, *President*

THE natural gas load in Con Edison's territory has shown the steady and unspectacular growth characteristic of New York City. Annual gas supply has been our principal problem. The pipe lines serving the area have coöperated splendidly in obtaining adequate reserves.

We could wish there were more conventional storage available in exhausted oil and gas fields but all fields which have been developed up to now are so far from New York that their economic advantages are marginal. As an alternative, our engineers are studying the feasibility of new storage techniques which could be used in our franchise area.

The need for additional peaking capacity is becoming acute. Not only must we provide for a substantial annual load growth but we are also confronted with the necessity of retiring our peak shaving plants, old water gas sets which were converted to high Btu oil-gas. The physical problems involved in manning and maintaining the plants are rapidly making their operation wholly impractical. The greatest deterrent to prompt retirement is the uncertainty of our future gas supply. Last winter temporary contracts made up nearly 30 per cent of our firm gas.

Unfortunately, there seems to be little ground for optimism that the difficulties in obtaining additional gas supplies can be remedied soon. The New York Public Service Com sion is striving to restrain the ri price of gas in the field. It st ted i CATCO case, "Considerati n o impact of initial price is the sine non of any determination o wh proposed sales of natural gas sh be certificated for the inter state ket. It is the 'prime deter minan This adds another to the comple sues that the Federal Po er mission must solve before expa gas supplies can be obtai ed i orderly way. It is to be f ared consumers, who badly wan gas, soon complain about an inab lity t it rather than become conce ned a the price, which I think for the part they regard as being reason

Consumers Power Company

Jackson, Michigan
D. E. KARN, *President*

CONSUMERS POWER COMPANY, serving 500,000 gas customers in 29 southern Michigan counties, looks forward to substantial increase in its gas supply. In recent years, gas use has been outdistancing supply in the Consumers service area, with the result that the company has a large backlog of unfilled applications for gas space heating service.

Under a contract with Trunkline Gas Company, Consumers is scheduled to receive an additional 36.5 billion cubic feet per year beginning in December 1959, with yearly increases bringing deliveries to 73 billion cubic feet per year after five years. It also stands to receive 13.3 billion cubic feet per year of additional deliveries from the Panhandle Eastern Pipe Line Company if Panhandle receives final authority to discontinue deliveries to another customer.

To facilitate the handling of gas from Trunkline, Consumers is b ing 141 miles of pipeline, exte from the Michigan-Indiana bord the Northville gas field near D and thence to a junction with pipelines of the company system of Pontiac. It has already comp an 85-mile pipeline from the Ov gas field near Holland, Michiga a system junction near Lansing. pressor stations are being built Overisel and Northville fields. A sidiary of Consumers, Michigan Storage Company, now operates storage fields in the north central of the Lower Peninsula. Trunkline gas becomes avail Overisel will be converted to sto

Negotiations looking toward th quisition of two other Michigan fields for eventual conversion to age fields are in progress.

The additional gas now in sigh fers hope that Consumers will be to catch up with its unfilled heating applications during the few years and at the same time a sharp growth in business. necting of 30,000 space heating plicants is now in progress. This bring space heating saturat on to 58 per cent of all gas custo mers.

During 1959 the company's service area has been broadened clude the communities of Shep Spring Arbor, Whitmore Lake Lathrup Village.

(*Continued on Page* 34)

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JACKSON & MORELAND INTERNATIONAL, INC.

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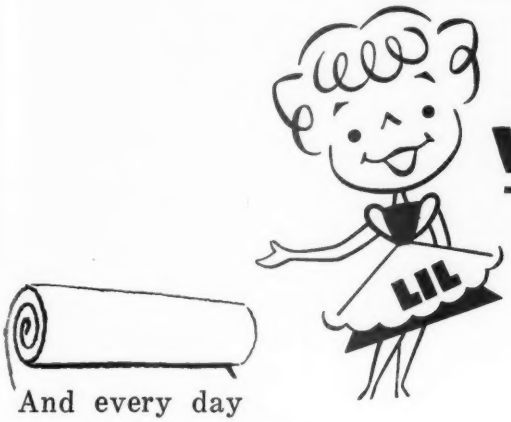

THE WELCOME MAT IS OUT!

And every day industries are finding it's a friendly welcome to new profit potentials. Individual plant sites, industrial parks, proximity to New York and world markets, reservoirs of manpower . . . they're all ready and waiting for new industry on *industrial* Long Island. And blanketing the Island from the Rockaways to Montauk Point is LILCO's vast network of power lines and gas mains, supplying industry with the power to grow on.

Supplying plentiful, low-cost gas and electricity to meet the requirements of industry and home alike has always been the specialty of Long Island Lighting. Now, with new power plant capacity, additional natural gas facilities and increased electric distribution lines added during the past year, LILCO has made industry's "Welcome" bigger than ever!

LILCO SERVICE

For information about choice Nassau and Suffolk County plant sites, write: Industrial Development Division, Sales Dept., 250 Old Country Road, Mineola, Long Island, N. Y. Strictly confidential, of course.

LONG ISLAND LIGHTING COMPANY

Delaware Power & Light Company

Wilmington, Delaware
F. P. HYER, *President*

At the time of conversion to straight natural gas on our system in 1954 we had slightly less than 51,000 gas customers, a house heating saturation of 10.1 per cent, and a system peak day of under 11 MMcf of equivalent natural gas. Five years later we have attained a 27 per cent house heating saturation of our 57,400 gas customers and have supplied peak day requirements of 28.4 MMcf.

This rate of growth in peak day requirement is expected to continue making it necessary for us to prepare for a maximum day in 1963 of about 42 MMcf. Coupled with this growth in system demand which hinges on the future sale of space heating gas, we expect a steady growth in all classes of firm business and to continue to acquire the large volume seasonal sales necessary to the efficient development and economic utilization of our system.

Our company has participated in all the gas storage developments undertaken by our supplier and expects to support and participate in such storage plans as may be available to us in the future. We believe that such storage projects by transmission pipelines are essential if market companies are to continue rapid expansion in the low load factor sales of gas for home heating.

Each year a portion of our system's peak gas load has been produced through operation of high Btu oil gas and propane-air facilities. Such eration will continue and in orde minimize the impact of future dem charges the hours use of our pro tion plant is expected to expand.

To improve the security of the tem against interruption of supply to assist in meeting the rising p loads in the future, considerat on is ing given to the construction of h pressure storage within our ser area. Land for this facility has b acquired and the necessary addit to our transmission system made to cilitate the development of this p ect. Construction will wait until accuracy of load forecasts has b established and the economic time beginning the project determined.

Equitable Gas Company

Pittsburgh, Pennsylvania

DONALD B. BEECHER, *President*
Gas Supply and Demand Relationship

Since the end of World War II, the Pittsburgh area has experienced a phenomenal growth in the number of heating customers and the associated heating load. At the end of 1947, Equitable served some 65,000 space heating customers in the city of Pittsburgh and surrounding Allegheny county, Pennsylvania. Its principal service area; this number has more than tripled during the past 12 years and now the use of gas for space heating is widely accepted in our service area. Today, practically all new homes being built in this area are gas heated. This growth has, of course, benefited the company but it has also presented many and varied problems, one of the most important being the maintenance of a satisfactory gas supply and demand relationship.

Equitable is in the favorable position of being able to approach its supply and demand problem from several avenues due to its variety of sources of gas supply—namely, production from its own wells, purchases from independent producers in the Appalachian area, purchases from pipeline companies and the use of underground gas storage facilities.

Company production is obtained from wells spread over a three-state area, Pennsylvania, West Virginia and Kentucky and this source has played a very important part in Equitable's operations, accounting for about 36 per cent of its total gas supply in 1958. Equitable spends from 2.5 to 3 million dollars per year in its well drilling program in order to maintain a satisfactory production level. Volumes of gas purchased from independent producers in the Appalachian area represent about 14 per c of total gas supply.

Prior to 1947, Equitable obtai its entire gas supply from these palachian sources. Since that t however, the company has entered to long-term gas purchase agreem with Tennessee Gas Transmiss Company and Texas Eastern Tra mission Corporation. The volume gas purchased from these southw sources in 1958 amounted to abou per cent of Equitable's total gas s ply.

Since 1934 the company, one of pioneers in this field, has been exp ing its underground gas storage cilities. At the beginning of the 19 1948 heating season, Equitable about 9 billion cubic feet of ga underground storage which prov a maximum daily deliverability about 143 million cubic feet. By beginning of the 1959-1960 hea season Equitable expects to have proximately 33.5 billion cubic fee gas in storage with an estimated m mum daily deliverability of 590 lion cubic feet. Upon completion o fourteenth underground storage the Rhodes storage pool, now u development in West Virginia, company will have an estimated u ground gas storage capacity of billion cubic feet.

The importance of Equitable's age operations can be demonstrate

Dependable Natural Gas Service for Home, Farm and Industry

KANSAS-NEBRASKA Natural Gas Company Inc.

Serving the Great Plains Area

fact hat during the 1958-1959 ing se ason over 25 per cent of the winter requirements and about er ce t of the peak day require- ts w re supplied from under- nd st orage.

his ye r the company is installing first leg of a new high pressure transmission line and additional compressor capacity. This project, presently contemplated to include 68½ miles of a 16 and 20 inch high pressure transmission line and approximately 20,000 Mcf additional compressor capacity, is expected to be completed by the fall of 1962 at a total cost of approximately $7,000,000. It will provide Equitable with the additional transmission system capacity estimated to be necessary to fully utilize the gas from underground storage facilities now existing and those presently contemplated for future development.

The Gas Service Company

Kansas City, Missouri
R. M. POWER, *President*

THE GAS SERVICE COMPANY has developed and is enjoying approximately a 99 per cent household saturation in its four-state service with some 560,000 total customers. We utilize every reasonable available means to promote the building of base load through expanded use of more gas appliances such as generators, dryers, incinerators, and lights. In addition to intensified jobber and dealer coöperative programs we have a comprehensive program for merchandising, together with operating contractors, the several lines of gas air conditioning equipment.

In our service area, and nationally, the electric industry has made inroads into the gas cooking load and to a lesser extent into the gas water heating load. These electric gains may have been made by virtue of industry's complacency caused by the false assumption that the customer's primary desire is for fuel economy.

The electric industry is now embarking on an ambitious program to correct their load factor problem by intensively promoting electric heating. The degree of their success can also improve our load factor but at the expense of gas sales and revenues. Ours is strictly a distribution company, and we know emphatically that distributors, locally or nationally, cannot successfully carry on the forthcoming battle with the electric industry alone. It is going to take the combined effort of each segment of the industry to combat this threat. While we, at Gas Service, are bending every effort towards building base and summer loads, we also have started to protect our winter heating load with promotional programs stressing again the advantages of economy, dependability, and modernity of gas for home heating.

(*Continued on page* 36)

ARKANSAS LOUISIANA GAS CO.

and wholly owned subsidiaries

Arkla Air Conditioning Corporation
Humphrey Gas Heating Division
Arkansas Cement Corporation
Arkansas Louisiana Chemical Corporation
Arkansas Louisiana Finance Corporation
Reynolds Gas Regulator Company, Inc.
Pitts & Bryant Co., Inc.
Arkansas Industrial Pipeline Corporation
Razorback Fiberglass Corp.

SHREVEPORT, LOUISIANA & LITTLE ROCK, ARKANSAS

Greeley Gas Company

Denver, Colorado
LEE E. SCHLESSMAN, *Vice President*
What Greeley Gas Company Does To Better Its Load Factor

THE problem of upping load factor for Greeley Gas Company (a relatively small utility serving approximately 22,000 meter customers in five widely separated districts in Colorado and Kansas) has certain characteristics not shared by most large metropolitan utilities.

At the present time, the company enjoys a very healthy competitive position. This is true, (1) because the natural gas we distribute in our five operating districts is purchased at reasonably low cost, and (2) because we benefit from a better-than-average price relationship between natural gas and other types of fuel marketed in these areas.

We determined some time ago that the most efficient approach to selling more gas during the warm-weather months—and thereby "equalize" our larger volume of gas used for winter-time heating—is through sales of gas for year-round air conditioning and for interruptible loads.

During the past year, Greeley Gas Company began an intensive campaign to promote and *sell* gas air conditioning equipment, merchandising its "comfort features" through our New Business Department. This activity, along with consistent efforts to gain interruptible loads, has created substantial new revenues for the company.

We feel that this type of additional load in no way increases our investment in plant equipment yet it certainly boosts the load factor during our low-peak months. Frankly, our installation sales of gas air conditioning equipment have produced no profit whatsoever, and in some cases have actually resulted in small losses to the company.

Still, we plan to pursue this policy over a two- or three-year period. At the end of this time, we will make the decision as to whether the company should try to make a modest profit from this equipment—or whether these sales have increased our load factor sufficiently to justify continuing to sell at cost, or below cost.

Here we might mention gas yard lights. Our sales of these popular little gas-users have proved a steady, if small, source of revenue as well as a year-round load-builder.

Our most effective promotion—in terms of introducing *en masse* the various uses of gas to the public—has been through the medium of an "All Gas Home," whereby Greeley Gas Company has arranged with a local contractor to construct a show house early in the summer months. In it are featured modern appliances and equipment exemplifying the eight basic residential applications of natural gas. Arrangements are also made in conjunction with local furniture dealers, interior decorators and other suppliers of similar materials and services, thus adding to the attractiveness of the house itself, and to the desirability of the "new way of life" made possible in it because of natural gas. But Greeley Gas Company is clearly the major sponsor, and our prime target is the gas air conditioning equipment market.

Following a well-advertised "Open House Weekend," the home remains open for further public inspection during the next 30 days. This approach has been extremely suc
in exposing, first-hand, se era
sand people to the most up-to-d
equipment. This past yea s
completion of the fourth con
sponsored "All Gas Hom "
tion in the Greeley district. We
to step up this kind of ac ivit
ing the coming year and to e
the promotion to the othe fo
tricts we serve.

Another phase of Gr ele
Company's load factor pr gra
has proved helpful to a ery
extent is the work of our di tric
agers and salesmen with l cal
tries, school boards and vario
organizations. Our men have
excellent results from exp lain
such groups the advantage o
verting old type heating equ
and systems to an interruptible
using oil or propane as standb

By this direct method, Greel
Company has been largely resp
for the conversion of a univ
several schools and two or thre
ufacturers and processors in th
few months alone. We have
that personal contact by a qu
representative of our company
only logical way to develop thi
of load.

It is true, we admit, that G
Gas Company has a long road
in counteracting its terrific pe
riods of gas sales. However, w
coördinating our every effort t
prove this situation. We have
considerable progress, and b
quite strongly that within the
three to five years our load
position will be still more favor

Illinois Power Company

Decatur, Illinois
ALLEN VAN WYCK, *President*

ILLINOIS POWER COMPANY has continued to contract for all the available natural gas from each of the five pipeline companies which supply us. This amount of gas is still not sufficient to meet the demands of our customers for heating purposes.

However, during the past year, we have made considerable progress toward the development of underground natural gas storage fields.

We are investigating every underground storage possibility in all of the territory we serve. We have been fortunate to have found three possible storage areas in the southern portion of our territory. One of these, a former gas field, has already been placed in service this year. A second and larger field will be completed and placed in service in time for the 1959-1960 heating season.

As a result of these two developments, the total peak day supply from these two fields will increase our peak day capability 60 per cent over that available from the pipeline co
flow in this area.

A third natural gas sto age b
the same area is under develop
If it proves successful, the tota
ply from the three field will
than double our presen peak
capacity from the pipeline sup
this area.

Illinois Power has ma de te
other portions of its terri ory a
which holds promise of evelo

(*Continued on pag* 38)

ENERGY on the move!

ond he horizon, stretching across and up half a inen are today's and tomorrow's new highways owe -the natural gas pipelines. This is energy on nov More power for the homes and industry of America's fastest growing region. This is the unceasing underground movement that every hour of everyday matches the westward migration of a nation. We are proud to be a part of this dramatic story.

UTHERN CALIFORNIA GAS COMPANY **SOUTHERN COUNTIES GAS COMPANY**

Interconnected for dependable service through Pacific Lighting System

is being drilled for tests in coöperation with two neighboring utilities. Results of these test drillings will not be available for some time.

In addition to underground storage development, Illinois Power Company continues to maintain propane plants located at strategic points throughout the terriory, for peak shaving purposes. The capacity of these plants has been increased to about the maximum of both economic and operating limitations.

Dual fuel gas heating service is available to any customer of Illinois Power Company who will install standby equipment to burn a substitute fuel for heating whenever the outside temperature drops below 26°.

We are also attempting to achieve a better balance between supply demand by establishing lower rate gas usage during the off-peak sea

Illinois Power spares no effo its attempts to supply more gas t customers for heating purposes. will continue to press for more from our suppliers as well as t vestigate every possible undergr storage facility.

Iowa-Illinois Gas and Electric Company

CHARLES H. WHITMORE, *President*
Davenport, Iowa

THE peak day of Iowa-Illinois Gas and Electric Company has grown from 56,494 Mcf in 1949 to an estimated 236,097 Mcf by the end of 1959. During this period the number of residential space-heating customers increased from 17,511 to 85,852, representing a saturation of approximately 86 per cent of potential. During 1959, 7,500 residential heating customers and more than 400 commercial heating customers with inputs up to 3,000 cfh will be connected.

The substantial increase in space-heating sales has resulted in some decrease in our annual load factor. In 1958 the annual load factor on our flow purchases from our suppliers was 91.5 per cent. Over the years we have actively promoted and developed interruptible and off-peak sales to industrial and commercial customers and have used interruptible gas in our own electric generating stations in order to offset the low load-factor heating load. The development of underground storage facilities by one of our suppliers has been an important factor in our maintaining a high annual load factor. Approximately 28 per cent of our peak-day requirements is supplied by underground storage and 6 per cent from propane air peak shaving facilities. We are at present investigating the possibility of suitable storage formations being located within our service territory.

In 1960 our suppliers through the expansion of their facilities expect to be able to provide us with sufficient supply to permit us to accept all heating applicants, both reside ntial commercial, regardless of size.

In order to maintain our high nual load factor we will continu 1960 to concentrate on the promo of gas for air conditioning. Our forts in the past to sell gas for conditioning have been hampered to restrictions on gas for space h ing. With the prospects of an adeq gas supply in 1960, we will be ab broaden our efforts in selling gas air conditioning, particularly to residences and commercial estab ments.

Our construction program for will be based on installing the ne sary facilities to meet the contin growth in our present service a and rendering initial service to se new communities.

Iowa Power and Light Company

Des Moines, Iowa
A. PAUL THOMPSON, *President*
Gas Operations

IOWA POWER AND LIGHT COMPANY has experienced unusual growth in its gas business. Volume has more than tripled in the last decade. Presently, the company distributes natural gas in 25 communities in Iowa, the principal one being the capital city, Des Moines. The company's supply is purchased from two pipeline sources. All requests for firm gas service are being satisfied and it is anticipated that additional capacity will be available as needed to meet further growth in demand for service. Beginning in 1960, Iowa Power plans to initiate natural gas service in another 25 communities in Iowa, enabling them to have this premium fuel and thereby attain maximum attractiveness as places to live and make a good living.

Ipalco's efforts to balance supply and demand factors and maintain a desirable relationship between heating load and firm supply have included (1) the building of a peak shaving plant in 1955 and doubling its capacity in 1956 for the purpose of leveling firm demand charges, (2) planning of additional peak shaving capacity in the next few years to further control this important cost element in gas service, (3) deriving the maximum advantage of storage facilities of the company's pipeline suppliers to offset valleys in the summer loads, (4) encouraging interruptible service at reduced rates to increase off-peak usage, and (5) promotion of sales during the summer months to improve the load factor, the latter including design of firm service rate schedules to sell gas air conditioning.

Iowa Power's space heating saturation is now above 80 per cent. Thus, the majority of homes in the urban areas served by the company are enjoying the comfort, convenience and cleanliness of natural gas service. The preponderance of space heating load does produce large capacity requirements and local peak shaving and purchase of storage capacity improves the pipeline suppliers' load factor. At the present time Iowa Power is unable to justify development of its own sto facilities. However, its suppliers demonstrated foresight; one is panding its present storage facil and the other is actively develo a major project. Both pipelines a be commended for their consisten forts in seeking out and develo underground gas storage facilities

A major problem facing the ga dustry now is the continually inc ing price. Higher city gate rates the difficult problem of securing quate and compensatory retail for gas service. An important re for city gate rate increases is th creased cost of gas in the field a is hoped that the producers will velop a more stabilized price struct

The tremendous achievements the gas industry and existing untap potential generate confidence for tinued steady and substantial gr in the future and this is true fo country as a whole as well as th portant area served by Iowa P and Light Company.

Iowa Southern Utilities Company

Centerville, Iowa

ROBERT W. GREENLEAF, *Executive Vice President*

IA SOUTHERN UTILITIES COMANY purchases natural gas from e pipe line companies. Certain acteristics of these pipe line sys- dic ate the relationship of peak to a erage day sales. Each pipe syst m must be approached and ied individually in its relationship the ommunity or communities ed. U nder these circumstances we explo ing several ways of improv- load factor.

Where contract demand is an im- ant factor, improvement and updating of propane-air equipment will assist in decreasing the maximum day requirements and the quantity of valley gas on the system. The propane-air plant will permit a more orderly development of the base and heating load. Contract demand gas will be purchased only when the load has been developed and requires firm quantities of gas.

Industrial and commercial customers will be required to supply alternate fuel equipment, when the burner input exceeds a specified quantity. This reduces peak day requirements and improves load factor.

Industrial and commercial off peak loads are being solicited and encouraged. This includes seasonal firm loads such as corn and hay drying. While seasonal loads are in themselves poor load factor customers, they are a great help to annual system load factors.

Another method being used to help in the sale of summer valley gas is a retail tariff which is substantially less for summer usage and competitive with electricity for air conditioning.

Kansas-Nebraska Natural Gas Company, Inc.

Hastings, Nebraska

S. D. WHITEMAN, *President*

ITH Kansas-Nebraska, as with other operating gas companies, king out a better balance between ly and demand means, for the t part, developing a better summer .

e have been very gratified by the lic acceptance of gas air condition- promotions, and we feel that a stantial part of the answer to our mer load problem can be solved his manner. Recent developments as air conditioning have given us opportunity to answer our competi- in most favorable terms, and there very indication that future develop- nts will give us even more and bet- selling points.

he use of natural gas as irrigation p fuel has also been helpful to n developing a better summer load. ause we can offer a low-cost fuel, y farmers in our area are now to put their land under irriga- , whereas previously they had nd fuel costs prohibitive. This, of rse, has resulted in better and re table agricultural practices ch have been of benefit to the nom of our entire area. The de- nd of gas for alfafa dehydration nts continues to increase. This is a to October demand which helps in the valleys in our summer load. Competition for the heating load become more pronounced recent- and we can reasonably expect that ill intensify rapidly. We plan to ease our sales promotion to off-set attempted invasion of the heating rket, and we are confident that gas continue to be the dominant fuel long as the public is given all the s as to comparable costs and op- ing efficiencies.

All in all, we have been well satisfied with the number of new and replacement appliances being added to our system, and we have good reason to believe that this trend will continue.

Along with other groups in our area we are continuing and increasing our area development promotions. Small but stable industries are constantly moving into this region, in many cases adding to our summer load.

We are planning to initiate a modest gas storage project. If successful, it will be enlarged in the future.

These and other factors give us good cause to feel that we are making constant progress in the matter of a better balance between supply and demand.

(*Continued on page* 40)

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Here's a front and rear view of the more powerful, compact 4T Vermeer Pow - R - Ditcher in action. If you are looking for a low cost, rugged, time - saving ditcher, take a look at the 4T before you buy.

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Laclede Gas Company

St. Louis, Missouri
H. REID DERRICK, *President*

SINCE 1950 Laclede, serving some 350,000 customers in the Greater St. Louis area, has increased its annual send out almost three-fold. The bulk of this increase has been seasonal, with the number of residential heating customers rising from 80,000 to 195,000.

Primary in the company's plans for load balancing has been the development of local underground storage. Laclede was one of the first gas utilities in the country to develop an acquifer-type storage field. Gas inventory at the Florissant field, nine miles north of downtown St. Louis, where first withdrawals began in 1955, is now about 9 billion cubic feet. The ultimate capacity of this field may amount to 40 billion cubic feet.

This successful pioneering venture has already allowed Laclede to add the equivalent of 85,000 residential heating customers who could not have been served without it. The com has leased ground for a pro second field, somewhat la ger the one at Florissant, near Colu Missouri.

During recent years Lacl de h tively promoted the sale of larg gas air conditioning equipm ent a now also promoting the sal of s er units for residential use, fo believe there is a real futu re fo types of gas air condition ng.

Louisville Gas and Electric Company

Louisville, Kentucky
G. R. ARMSTRONG, *President*

FOR the twelve months ended June, 1959, total gas sales of Louisville Gas and Electric Company, when related to the peak day sendout for the period, resulted in an annual load factor of 36.4 per cent. Our natural gas purchases for the same period, under suppliers' rate schedules with stringent take-or-pay-for requirements, were at a load factor of 73.4 per cent.

In the future as in the past our efforts to balance these widely divergent load factors will be directed toward the development of underground storage and the promotion of off-peak and seasonal sales. Our projections indicate that the peak day requirement for the coming winter will be 323,000 Mcf on a five degree day, with storage providing 160,000 Mcf or roughly 50 per cent of this demand. The addition of our Magnolia storage field has brought total daily deliverability from storage to approximately 200,000 Mcf when the reservoirs are full, with somewhat lesser amounts as the stored volume declines. Scheduled development of the Magnolia field is expected to bring total deliverability from underground storage to 250,000 Mcf per day, and we are working toward still further increases in our overall storage capability.

Our storage fields, while capable of high deliverability, are not of unlimited volumetric capacity, with the result that they have not been able to absorb completely the gas which we have been required to take or pay for during the summer months Our tric department has provid d an let for such summer surplus by it as boiler fuel in our ste m-el plants. In spite of steadily incre gas purchases, the volume of gas used for electric generation in was smaller than that used in Our plans are to continue to hol burning under our own boilers minimum.

With respect to the promotio seasonal and off-peak loads, we continue to actively seek new cus ers under our nine-month sea commercial and industrial rate our dual-fuel off-peak space he rate for large loads. We also great hopes for the development substantial gas air conditioning

Minneapolis Gas Company

Minneapolis, Minnesota
GERALD T. MULLIN, *President*

MINNEAPOLIS GAS COMPANY is modernizing its peak shaving facilities by completing the replacement of its oil gas and carburetted water gas plant with additional propane-air production plants.

Two new propane-air plants with storage for about 3,000,000 gallons of propane will be completed by 1960. All of the old manufacturing plant with wet holders of 7 MM cubic feet capacity is being retired and dismantled as units of the new propane facilities are completed.

The propane-air facilities by 1960 will consist of about 7,000,000 gallons of propane storage and a production capacity of 144 MM cubic feet of propane air per day at six locations within the company's distribution area. One plant will be on land contiguous to the old plant. The cost of peak shaving equipment and land to be added during the old manufacturing plant retirement will be about $3,000,000.

In addition, we expect to add proximately 7,000 new heating tomers each year. To do so w not only expanding our mains services but we are also strengthe our distribution system by a coöp tive plan with Northern Natural Company, our supplier, which give us a new delivery point, w in turn, will increase the cap of our distribution system substantially.

Montana-Dakota Utilities Co.

Minneapolis, Minnesota
CECIL W. SMITH, *President*

MONTANA-DAKOTA UTILITIES CO. is a combination electric and natural gas company. In 1926 it began development of a natural gas supply on the Cedar Creek anticline in Montana and began construction of pipelines to market the dry gas being developed. The market available for this gas consisted primarily of residential and commercial customers and the principal market was space heating. There is a limited amount of industry in the area, which is primarily agricultural. The efforts to work out a reasonable balance betw en su and demand have been one of problems of MDU since begin the development of the natural business in its territory in 1926.

The company owned electric erating plants which were equi

oil st ndby and in the early years wer e used to acquire some balbetw en supply and demand. Be- the gas supply was obtained in gas ield with high deliverability, chie ement of a balance was of im portance.

bseq ently as business developed s th original source of supply e C lar Creek anticline became ally epleted, an additional dry ield pon the Bowdoin Dome, in rn Montana, was connected to company's natural gas system. r the end of World War II, be- of the disparity between natural rates and other competing fuel s, the company's natural gas ness developed quite rapidly h greatly increased winter peak nds. In order to relieve the situ- underground gas storage on the r Creek anticline was begun exentally in 1945. The Bowdoin ield was operated as a base load and gas was removed from that and stored underground on the r Creek anticline during periods ht demand. This increased pres- on the Cedar Creek anticline, h is centrally located with respect arkets, so that peak demands be handled for about five addil years.

ith the still increasing demand natural gas caused by increased opment of space heating, addil gas supplies were required and 950, a pipeline was constructed e Big Horn Basin in Wyoming nsport 35 million cubic feet per of residue gas from a Pure Oil pany gasoline plant located near Worland oil field in Wyoming. It possible to acquire this amount additional production, delivered rmly throughout the year, be- e of the underground storage ca- y available on the Cedar Creek line. Excess gas purchased durperio s of minimum demand has been stored underground and mes available for handling peak er lo ds. Subsequently in connecwith he acquisition of the Billings Com any and the Big Horn Gas ervi g Billings, Montana and adnt ar as in the Big Horn Basin, iona underground storage ca- y w acquired in the Elk Basin in V yoming. Approximately 30 on cubic feet of gas has been d in storage in these two fields. ar Sheridan, Wyoming, the par- depleted Billy Creek field has deve oped for storage beginning 1950 and approximately 1½ bil-

lion cubic feet have been placed in storage for meeting winter peak demands now in excess of the daily capacity of the pipeline serving this area.

In 1955 an additional 30 million cubic feet per day of residue gas available at the gasoline plant of the Signal Oil and Gas Co. located in the Beaver Lodge-Tioga oil field near Tioga, North Dakota, was purchased. This gas has been flared for several years while development of the oil field took place and prior to the construction of the gasoline plant. Here again because of available storage capacity upon the Cedar Creek anticline, it was possible to utilize this residue gas to serve a market with a very poor load factor.

The territory served by MDU is largely agricultural with limited industrial loads available. As a result, approximately 60 per cent of the natural gas sales are for space heating and for general domestic and commercial use. In 1958 on the company's integrated system, the minimum daily load was approximately 39 million

(*Continued on page 42*)

Just completed . . . 140 miles of large diameter pipe line from East Dubuque on the Mississippi to the Northern Illinois Gas Company. This will bring an additional 50,000,000 cubic feet of natural gas daily to the heart of Northern Illinois Gas' fast growing service area . . . **an increase of 12½%!**

Northern Illinois Gas Company ranks 7th among Gas utilities in the United States and serves 280 communities in 20 counties in northern Illinois outside of Chicago

Across the hilly terrain of northern Illinois comes our new Gas distribution line. Problem of this steep hill is solved easily as bulldozer lowers giant trenching machine down the loose-surfaced incline.

***For information** about the Company or area, write:*

Marvin Chandler, President, Northern Illinois Gas Company, 50 Fox Street, Aurora, Illinois.

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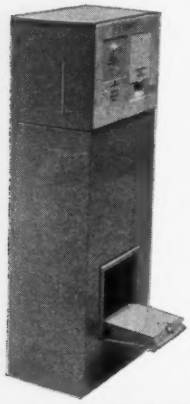

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cubic feet while the maximum daily load was approximately 204 million cubic feet, a ratio of better than 5 to 1. The annual load factor is approximately 45 per cent.

On the Sheridan system, which is not connected to the main system, the minimum load in 1958 was 1,172 M cubic feet while the maximum daily load was 9,660 M cubic feet. Here the ratio maximum to minimum is a little more than 8 to 1 and the load factor is approximately 36 per cent.

The development of these three storage fields has made possible the serving of a market of this character on an economically sound basis. It is expected that as satisfactory ga conditioning units are develope installation of this type of equip will substantially improve the an load factor. An attempt is being m by the several states in which MDU gas property is located to cure additional industrial deve ment. The serving of new indus on an interruptible basis will, course, considerably improve the ance between supply and dem From an economic standpoint, h ever, the use of storage, conser gas for space heating, is more att tive than the sale of interruptible at substantially lower rates.

The Montana Power Company

Butte, Montana
J. E. CORETTE, *President and General Manager*

THE Montana Power Company's continuing program to develop additional supplies of natural gas for the future needs of its customers currently is highlighted by activity in three areas, as follows: (1) the purchase of available gas, (2) an active exploration and development program, and (3) development of local storage reservoirs to help meet peak winter demands.

The company is in partnership with Pacific Gas & Electric Company in a program to import natural gas from Canada for use in Montana and California. Montana Power's purchases from the project will be at the rate of 30 million cubic feet daily initially. An export permit has been issued by the Alberta Governm and applications for export and port licenses have been filed with Canadian Dominion Government the U. S. Federal Power Commiss

The company also is engaged in expanding exploration program, h in Montana and Canada. Geolog offices are maintained in Cut Ba Mont., and Calgary, Alta., for purpose.

Three storage reservoirs are be developed in northern Montana provide additional storage for the put of Canadian gas and to help m peak demands during the winter he ing season.

All of these reservoirs are in pleted gas fields.

New England Gas and Electric Association

Cambridge, Massachusetts
JOHN F. RICH, *President*

ON August 31, 1958 we completed a five year sales promotion program designed to bring the gas sales in step with the five year contracted natural gas demands. During this period emphasis was placed on the sale of heating appliances due to their ability to add load quickly. In 1959 and in 1960 we plan to promote gas appliances at about the same rate, with continued emphasis on heating to meet the ever increasing cost of doing business and to show a reasonable return on our capital investment.

We have taken the following steps to develop a better relationship between the gas heating load and the firm supply of gas:

1. Encourage the sale of off-peak firm gas with special contracts and prices designed to meet the cost of wholesale purchases number 2 oil.
2. Encourage the sale of interru ble gas with special contracts prices designed to meet the of wholesale purchases of nu ber 5 and number 6 oil.
3. By burning off-peak gas und the boilers at our electric stati
4. By developing an acceptance gas air conditioning and gas frigeration. To date gas air c ditioning and refrigeration h been a negligible factor in bui ing the use of the off-peak lo but we hope to develop a bet acceptance and increase l sales these two products in the futu

It should be pointed out that wi it is desirable to fill in the valle

(*Continued on page 44*)

ALWAYS ON CALL

when service is needed!

This year, our 750 Gas Servicemen will handle nearly one million requests for service from our customers.

Service is part of our name. And necessary service we are **always** ready to provide. It's one of the big reasons why Gas is so **dependable** in the territory we serve in New Jersey.

P.S. Gas Serviceman answering customer's call.

PUBLIC SERVICE

A-320-59

caused by heating peaks our gas heating rates are designed to take into consideration the cost of supplying the heating load with its *peak* feature. The money obtained from the sale of the off-peak gas adds additional revenues for the company and is not essential to the economics of supplying the heating loads.

Both pipeline companies serving the New England area have applications pending before the Federal Power Commission for winter peaking storage service.

While we have no underground storage facilities, we do have standby oil gas plants for peak shaving to take care of peak loads in severe cold weather. These standby plants are not a substitute for underground storage but they allow our company to serve the peak heating load in cold weather without exceeding the demand features of our natural gas contract.

In 1959 we expect to sell 24,517 gas appliances consisting of 3,853 house-heating jobs, 3,364 apartment heaters, 4,167 kitchen heaters, 5,338 water heaters, 6,577 ranges, 713 dryers, 300 incinerators, 175 refrigerators and 30 air conditioning jobs. Of these appliances installed on the lines of our company approximately 60 per cent will be sold by the gas company and 40 per cent by dealers.

The fall range and heating campaign will run from September 8 November 21, 1959. In this period gas companies plan to sell 1,3 ranges, 1,250 apartment heaters a 1,125 househeating jobs.

It is interesting to note that duri the past 12 months we have secur for our company a new load in f new public housing projects bu mostly for the aged with thr e mo projects under negotiation. The projects have 406 dwelling units a will add an estimated annual domes gas load of 45,364,000 cubic f et wi a yearly revenue of $58,608.00.

Northern Illinois Gas Company

Aurora, Illinois
MARVIN CHANDLER, *President*

NORTHERN ILLINOIS GAS COMPANY is now offering natural gas for space heating, on a limited basis, to multi-family dwellings, churches, schools, municipal buildings, and commercial and industrial establishments for the first time in about 13 years. Since 1946, we have been operating under a restriction order of our state commission confining new heating loads to single-family homes and only to the extent that new supply increments become available. During this period, the number of house-heat customers has increased from about 35,000 to more than 300,000. Today, we have virtually no residential gas heat waiting list.

The rapid progress during the past year is due primarily to three new supply increments, one received last December and two expected before the end of 1959. The total of these additions represents a 50 per cent increase in available flow gas. With three major pipeline systems serving us, we are confident that we can obtain additional increments as needed.

As to solving our seasonal load-leveling problem, we have continued to increase our peaking facilities. We now can peak shave approximately one-third of our maximum day send-out. Surplus gas is being injected into aquifer reservoirs, owned by one of our suppliers, during summer months for use during cold winter peak periods. This winter, we will receive an increase of 25 million cubic feet in daily withdrawal quantities from storage, bringing the total to 186 million. A further increase is expected in the 1960-61 winter.

Our own underground storage project is being developed on schedule. By the end of this year, we will have nearly 5 billion cubic feet in this structure. We plan to make large-scale withdrawal tests this winter hopes of having the reservoir in o eration for the following winter.

We also are building our firm yea round load through active promoti of the basic gas-burning appliance In addition, after about three years pushing natural gas air conditionin we now have about 9,000 tons of th load on our lines or under contra

Meanwhile, our customer list co tinues to expand rapidly. We no serve more than 650,000 and a adding between 30,000 and 35,0 annually.

To keep pace with development o our fast-growing area and continua ly increasing heating load, we ha budgeted $158 million for constru tion for the five-year period 1959-6 About $37 million of this will go to ward underground storage develo ment.

Northern Natural Gas Company

Omaha, Nebraska
J. F. MERRIAM, *President*

NORTHERN NATURAL GAS COMPANY is looking to storage to help considerably in utilizing its pipeline system to the best advantage.

Northern has developed an underground storage reservoir near Redfield, Iowa (30 miles west of Des Moines). This dome-shaped subterranean area covers 12,000 acres and is located within its market area. Northern recently applied to the Federal Power Commission for permission to use this storage facility to help meet the requests of its customers for the 1959-60 heating season.

Northern has filed an application to convert the Otis gas field in central Kansas into an underground storage project. The company also recently started drilling a series of shallow wells in the Fort Dodge, Iowa area to explore the possibility of structures suitable for the underground storage of gas.

The company is well along on a construction program to provide 50 million cubic feet a day to presently connected communities and 50 million cubic feet a day to a new customer, Northern Illinois Gas Company. A recent Federal Power Commission decision has given Northern authority t add 342 new communities to its system. The additional capacity to b provided by this program is 230 mi lion cubic feet daily and the cost wi be over $100,000,000.

The company has commenced con struction on a branch to Duluth Minnesota and Superior, Wisconsin which will be completed this year Time will not permit much construc tion this fall and most of the program will be extended over to next year.

(*Continued on page 46*)

Is Your Company "Keeping Pace?"

From 1945 to 1958 annual operating revenues of electric and gas utilities rose over 200%. Maintaining an efficient organization in the face of this increasing volume has placed a strain on many companies. Top management has often been so busy with day-to-day operations that insufficient time has been left to prepare men for growth needs.

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PIONEER IN DOMESTIC GAS INCINERATION

Oklahoma Natural Gas Company

Tulsa, Oklahoma
H. A. EDDINS, *President*

OKLAHOMA NATURAL is an integrated company primarily engaged in the business of purchasing, producing and distributing natural gas for sale to retail and wholesale customers.

The company serves directly or indirectly more than half the population of Oklahoma. Through 7,344 miles of pipeline we serve directly 152 cities and towns and adjoining areas having an estimated population of 1,154,000. In addition, wholesale deliveries are made to other distributing companies for either the full or partial requirements of 31 communities with an estimated population of 69,000.

We actively compete with other purchasers for new gas supplies and with two large electric utilities for our markets. Our gas heating saturation is well over 99 per cent. To balance our heavy heating load we are promoting vigorously gas air conditioning for residential, commercial and industrial use. We now have connected to our lines approximately 49,000 tons of gas air conditioning.

The company has four underground storage operations having a total capacity of 157 billion cubic feet. To utilize this storage capacity to full advantage, our transmission system [illegible] been designed to transport gas large volumes from our princi points of supply into and out of storage facilities.

As evidence of the effectiveness our transmission and storage fac ties, as recently as January 4, 19 when we experienced our all-ti peak day, we delivered 851,487 M to 371,299 customers. On that d 55.5 per cent of the total gas deliver was supplied from storage. No c tailment to any consumer was nec sary on that day, or in fact on a day in over seven years.

This announcement is not an offer to sell or a solicitation of an offer to buy these securities. The offering is made only by the Prospectus.

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NEW YORK HANSEATIC CORPORATION — STERN BROTHERS & CO.

SWISS AMERICAN CORPORATION

September 22, 1959.

ur construction expenditures for past year were $6,800,000. It is mated that our capital expendi- s for the current year will be 00,000. Of this amount, approx- tely one and a half million dollars will be used to provide service to an estimated 9,000 new customers, $2,500,000 for replacement and improvements to service facilities, about $1,300,000 for exploration and drilling for gas production. The remainder will be spent for additional investment in gasoline plants, storage facilities, extension to new gas supplies and miscellaneous acquisitions and installations.

Orange and Rockland Utilities, Inc.

Nyack, New York
CHARLES L. HULSWIT, *President*

UR company is combination gas and electric serving a fast grow- region in the New York City met- olitan area.

n all new homes constructed, gas nvariably used for space heating poses. Consequently our rapidly wing gas heating load presents a stant problem of load balancing. sent heating saturation is 71.5 per .

he solution of this problem has n approached from several angles. irst, our space heating rate is so gned that the installation of a gas ge and automatic gas water heater efinitely to the customer's advan- in conjunction with space heat- Consequently in practically every we get two desirable year around s which contribute toward load ncing.

econd, aggressive sales efforts are ntained on the sale of household liances to all customers to build r around load. The success of this rt is indicated by the fact that our cooking saturation is close to 100 cent and automatic gas water heat- close to 90 per cent. Gas dryer s are also showing a material in- se each year.

n addition, personnel specially ned on commercial and industrial applications are doing an excel- job in this field as a part of load ncing.

urther, we have attained consider- success in the sale of off-peak to industry on an interruptible s and additional sales on this basis e been contracted for by custom- to be connected later this year.

n August 1958 we launched what called our Citation Home Program a counterpart of the Medallion me being promoted by the electric ustry.

he Citation Home retains the ade- te wiring and good lighting fea- es of the Medallion electric home requires that central gas heating, atchless gas range and a non-fer- s automatic gas water heater, plus other major appliances, be in- ded in each Citation Home built. he success of this promotion dur- the first year has been very en- couraging and contributes to our load balancing program.

Gas air conditioning is also included as a part of our promotional effort to improve load factor and contributes its share toward load balancing.

During the past year a new 16-in. high pressure gas line was constructed through our most heavily populated area. This line not only enables the company to meet increasing firm ca-

(*Continued on page* 48)

WILDERNESS ROAD: *175 years later*

In 1785, the trip across the Wilderness Road — from the Cumberland Gap to Danville—took about two months by pack horse. From Danville to Paducah was virtually untraveled wilderness. The first settlers in Western Kentucky brought with them seeds to plant corn and tobacco in truly new and fertile soil.

Today's new settlers can make the trip from New York, Chicago, Pittsburgh, Detroit, or Cleveland, by plane, in several hours at most. They bring the seeds of new growth — blueprints from which to build modern plants and factories.

The major factors influencing location of an industry, in any given area, are adequate supply of suitable labor, community interest and cooperation, good transportation facilities via water, rail and highway, good living conditions, and an ample, dependable gas and electric supply. Since *1948, 119* industries have located in Western Kentucky, which certainly is indicative of a most favorable "industrial climate."

Economical service of utilities, such as Western Kentucky Gas Company, have contributed in a dynamic way to this remarkable industrial growth. Western Kentucky Gas Company is proud to have served South Central and Western Kentucky — both industry and home — for more than 25 years . . . proud, too, that we ourselves have grown, kept pace with, and led in the transformation of the Wilderness Road.

WESTERN KENTUCKY GAS COMPANY
GENERAL OFFICES OWENSBORO, KENTUCKY

pacity requirements in the area but also adds to the flexibility of operations as well as providing the necessary distribution line capacity needed for balancing out the peak load with valley gas sales in the off-peak periods.

Furthermore, in order to meet rapidly growing demands for gas service, studies indicate the economic desirability of constructing additional peaking facilities for use during peak periods to keep down contractual demands in connection with gas purchases.

The combination of all of the f going is our program to maint better relationship betwee hea load and firm supply.

No plans are in prospect for storage of gas which, in our cas not feasible.

Pacific Gas and Electric Company

San Francisco, California

S. L. SIBLEY, *Vice President and General Manager*

PACIFIC Gas and Electric Company is continuing its major expansion program to keep ahead of California's rapid growth, and simultaneously is conducting an aggressive sales program in all applications of natural gas.

Development of two underground natural gas storage fields is well under way as a primary project in 1959. The company is actively pursuing its applications to both Canadian and American governmental agencies for importation of natural gas from Alberta, a $330 million project.

While PG&E is a non-merchandising utility, we work successfully with qualified dealers and their industrial associations in aggressive promotion of gas for residential, commercial and industrial uses. Promotional emphasis this year includes active campaigns on upgrading gas range and heating installations and the use of gas clothes driers. PG&E sales to industrial customers increased a substantial 11 per cent during the first six months over the like period of 1958. In addition, PG&E has pioneered with installations of gas-fired infra-red units for commercial comfort heating, in agricultural product dehydration, and in several experiments with new applications of gas in other industrial processes.

Of the two underground storage projects, ultimate development of the McDonald Island field calls for a working volume of 30 billion cubic feet of natural gas as a minimum annual cycle and a peak withdrawal rate of 400 million cubic feet per day. A cushion of 44 billion cubic feet will maintain minimum operating pressure. Cost of the ultima dev ment is estimated at $22,873 000.

The smaller Pleasant Cree gas age field will have a maxim w ing volume of 3.25 billion ubic with a peak withdrawal rate of 80 lion cubic feet per day. Co st of project is estimated at $2,60 ,000.

Until 1950, all natural g s dis uted by PG&E came from Calif fields. Today, more than 70 per ce imported from other state s and company is seeking Canadian ga an additional source of supply. company has proposed importatio an average of 415 million cubic of natural gas per day through a l mile pipeline terminating at Anti California.

The Peoples Gas System

ESKIL I. BJORK, *Chairman*

The Peoples Gas Light and Coke Company

Chicago, Illinois

IN the last two years the Peoples Gas System has increased its peak day delivery capacity by 330 million cubic feet—an increase of 22 per cent—of which 185 million cubic feet represented a pipeline expansion program completed by Natural Gas Pipeline Company of America and 145 million cubic feet represented increases in the maximum day withdrawal capacity of the expanded storage facilities of Natural Gas Storage Company of Illinois.

Pending now before the Federal Power Commission are two applications of Texas Illinois Natural Gas Pipeline Company to increase the peak day delivery capacity by 105 million cubic feet. Chicago District Pipeline Company is engaged in construction of a new regional line to permit a greater delivery of gas to the utilities serving the metropolitan Chicago area, including Peoples Gas.

The increases in delivery capacity of the last two years, plus other supplies, have enabled the distributing companies served by the Peoples Gas System to offer space heating service to substantial numbers of customers, which in turn has presented the need for appropriate distribution system expansions.

The Peoples Gas Light and Coke Company, serving the City of Chicago, increased the number of space heating customers by 44,000 in 1958 and will add about 50,000 more in 1959, bringing the number who will be served next winter to more than 350,000. All of the applicants on the list as of July 31, 1959, who resided in single family or two family premises were offered space heating service in the most recent release by the company. During the past few years the company has pursued a program of offering gas space heating service to new homes constructed in the city and expects that its increase in gas supplies in the future will permit it to continue this practice.

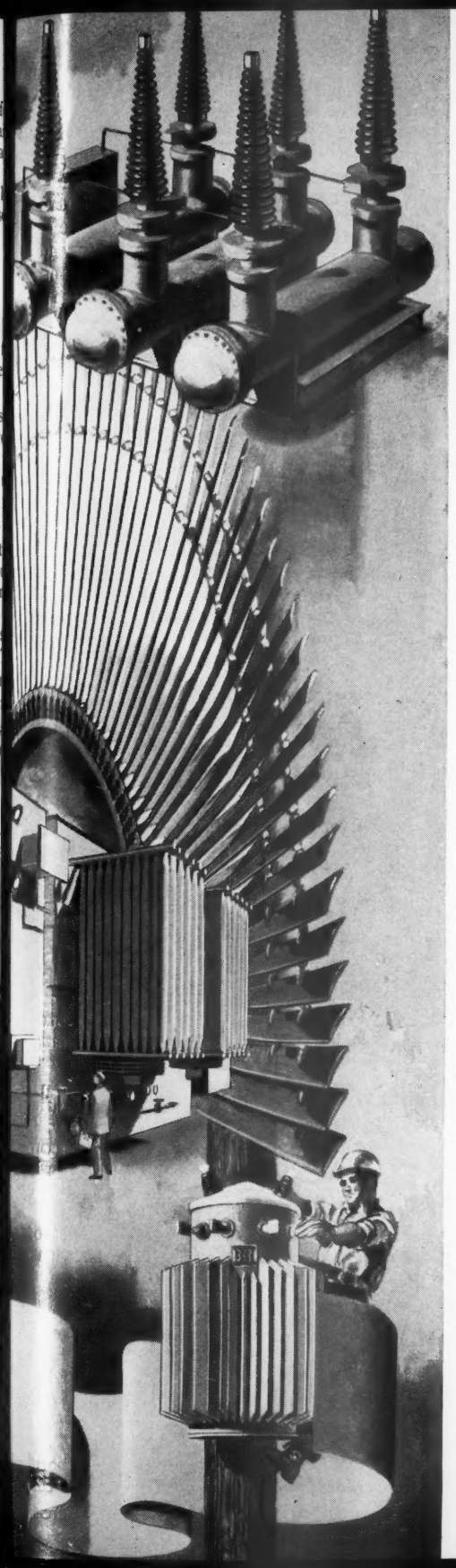
There remain on the waiting list a number of applicants who desire gas space heating service for multi-family dwellings and for commercial and industrial purposes, and during the past two years the company has offered such service to a limited number in each category with a view of learn more about the potential market.

During the ten year period end this year, the peak day delivery pacity of the Peoples Gas Syst from both pipelines and storage, increased more than three-fold, from 510 million cubic feet to 1 million feet.

Peoples Gas System is consta seeking to acquire additional gas s plies on a long term basis in supp of expansion projects which are j fied by market requirements. Furt more, it is seeking to expand un ground facilities of Natural Gas S age Company of Illinois at Hers and Cooks Mills. Through Union Gas Storage Company, another s sidiary, it is conducting explorat operations in other areas of the s in an attempt to locate suitable a tional underground storage facili

Because of the load factor appl ble to space heating busin ss in climate of the area served by The P ples Gas Light and Coke Comp large volume storage develo pmen

(*Continued on Page* 50)



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Westinghouse can bring you the products you will need to meet these requirements. Westinghouse has built some of these products. For the others, basic design and engineering work has been completed.

Whether you are planning or building for your future, Westinghouse can help you . . . now.

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most desirable in providing gas service on an economical basis. Continued incremental expansions of long distance pipelines in the absence of parallel development of storage or in the absence of adequate markets for the disposal of gas during the off-peak periods of the year, become less and less feasible.

The exploratory activities of Natural Gas Storage Company of Illinois seem to indicate at the moment that the Mt. Simon structure at Herscher may provide, in time, substantial storage capacity in addition to that in the Galesville structure in which gas has been stored for a number of years. The potential growth factor of the Mt. Simon structure cannot be predicted at this time but barring unforeseen developments, it seems likely that the growth could vary between 2 billion and 3 billion cubic feet per year.

If this should happen, some incremental increase in the peak day withdrawal capacity of Herscher may become an annual occurrence. This would be a most acceptable result to The Peoples Gas Light and Coke Company and the other distributing companies served by the Peoples Gas
tem, even though such incrementa
provements may be relatively mo

The Peoples Gas Light and
Company and many of the other
tributing companies in the area ar
gaged in promoting the use of ga
air conditioning—year-round as
as off-peak. The attachment of
loads will be instrumental in provi
partial solutions to the load f
problem, but the solution is of
range rather than short range cha
ter.

Public Service Company of Colorado

Denver, Colorado
R. T. PERSON, *President*

GAS department estimates of Public Service Company of Colorado, exclusive of subsidiary companies, for the five-year period 1959-1963 show a customer growth of 27.2 per cent, revenues increasing more than 33 per cent, and sales in Mcf of gas up 31 per cent. To provide for this increased volume of business, the company anticipates a construction program of more than $38 million for its natural gas system during this period.

As a part of this construction, the company is conducting an intriguing test to determine the feasibility of storing natural gas in an abandoned coal mine near Denver, Colorado. The project, which is centrally located on the system, will assist in meeting peak load requirements, provide a valuable storage for emergencies, and can be used for improving the system load-factor.

The success of initial tests in this project, the first of its kind ever undertaken, has justified continuation of research aimed toward the ulti
development of an underground
age vault with a potential gas cap
of 3 billion cubic feet. If the pr
is proved feasible, the company
install the necessary compressor
hydration, regulating, metering,
pipeline facilities to realize a dail
liverability up to 150 million
feet.

The total project cost for ulti
development, including the test p
is estimated at $6 million.

South Carolina Electric & Gas Company

Columbia, South Carolina
S. C. MCMEEKIN, *President*

TODAY and for the foreseeable future, the gas operations of our company are keyed to a program of planned, orderly expansion designed to achieve a two-fold goal: to enhance the industrial potential of our service area and to put natural gas within the reach of as many potential consumers as possible.

During the past 12 months, a total of $3,420,021 was invested in the extension of natural gas transmission lines in the South Carolina Electric & Gas Company service area.

South Carolina Natural Gas Company, a wholly-owned subsidiary of SCEGCO, is responsible for the planning and construction of new transmission lines and the operation of the transmission service.

Extension of service coupled with an aggressive program of gas promotion has resulted in the addition of 12,035 natural gas customers since January 1, 1954.

This increase in consumer numbers appears even more significant when you consider that 113 years of manufactured gas operations in our service area had acquired only 27,233 customers.

That was our consumer total in 1954 when South Carolina Natural Gas Company first tapped the transmission line of Southern Natural Gas near Aiken, S. C. On January 1, 1959, the company counted 39,268 gas customers.

Extension of lines and active promotion of gas sales are continuing to produce a steady growth in the number of residential, commercial and industrial users. The average nu
of gas consumers served by the c
pany increased by 2,641 during th
months ended in July.

While major extensions have
made in transmission lines, SCE
as the retailing company has been
ing its expansion emphasis on ext
ing distribution lines in communi
already served by the company.

An increase early this year ra
the company's contract commitm
for gas purchases from Southern
ural to 49,000 Mcf per day. The
of gas purchased under the compa
demand purchase contract is bala
by selling gas to interruptible cus
ers during the non-peak season
by diverting excess supplies of g
one of the company's steam ele
generating plants.

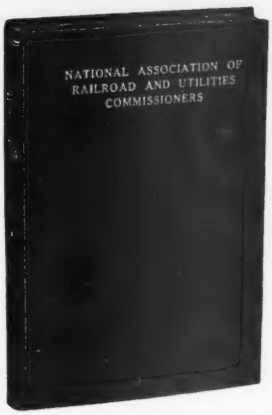
South Jersey Gas Company

Atlantic City, New Jersey
T. H. KENDALL, *President*

SOUTH Jersey Gas Company maintains a very favorable balance between supply and demand. For over five years the annual system load factor has exceeded 95 per cent, and similar high load factor operations are forecast for future years.

In addition to its regular daily allocation of natural gas, the company purchases relatively small volumes of underground storage gas, used only on cold winter days. Supplies available on a peak day this winter will inc
about 56 million cubic feet of re
gas and 3.5 million cubic feet of s
age gas.

The storage gas, and about 6
(*Continued on Page 52*)



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NATIONAL ASSOCIATION OF RAILROAD AND UTILITIES COMMISSIONERS

P. O. BOX 684 **WASHINGTON 4, D. C.**

lion cubic feet daily capacity of substitute manufactured gas, serve to "peak shave" the loads on the coldest days. However, most of the balancing of supply and demand is accomplished by the sale of gas on an interruptible basis to industrial customers having large fuel requirements.

Due to variable heating demands, daily sendout to retail customers ranges from about 10 million cubic feet in June to an estimated 46 million cubic feet on a design peak day this winter. To balance winter peak loads, interruptible gas is sold in large volumes for a wide variety of industrial uses. These sales are made on a profitable basis, and make an important contribution to the over-all economy of our operations. These customers also purchase large volumes of firm gas on a very high load factor basis.

The company plans to continue its aggressive promotion of both the residential and industrial loads, maintaining a healthy balance between the two. Both markets are growing rapidly. New and expanding industries are increasing the labor force, and stimulating new home building.

Promotion of summer air con tioning has not produced much in way of results so far, although company hopes for improvement. any event, it must continue to depe heavily upon interruptible sales to b ance heating load growth.

Relatively small investment, in lation to sales, is required to supp the requirements of these large indu trial customers. The major portion the company's construction progra of about $2 million per year is quired for the connection of new re dential customers.

Southern California Gas Company

Los Angeles, California
F. M. BANKS, *President*

(A feature article by-lined by Mr. Banks based on more general aspects of natural gas pricing appears in this issue, ante page 601.)

Southern Counties Gas Company of California

Los Angeles, California
GUY W. WADSWORTH, JR., *President*

With about 80 per cent of the natural gas used in southern California now being brought in from out of state, efficient year-around use of pipeline systems and other facilities is of critical importance to Southern Counties Gas Company. Southern Counties and its affiliated distributing firm in the Pacific Lighting system, Southern California Gas Company, serve more than 2,300,000 customers, about 99 per cent of whom use gas for heating. These heating customers sometimes, when temperatures drop in the winter and early spring, send usage figures for the system zooming to over two billion cubic feet a day.

Since the system must be geared to these maximum capacities, firm supply is set at a high level. For winter peaking purposes the supply is augmented by gas from underground storage, and emergency supplies from California producers.

The other side of the coin is the problem of increasing summer and year-around usage to support the high firm supply level. To do this, the distributing companies sell large quantities to interruptible customers.

Campaigns to promote sale of year-around gas appliances such as ranges, water heaters, and clothes dryers also are given much emphasis by the two Southland distributing companies. Besides building total gas loads, these appliances help keep facilities operating closer to their most economical level. As a result of strenuous promotional effort, the two companies have added approximately 1,500 gas fired air conditioners on their lines. To the Arkl Servel promotions will be added cam paigns on behalf of two other bran of air conditioning units within t next few months.

Gas refrigerator sales, a big fact in building and maintaining yea around gas loads, have improved th year with 3,537 put on the lin through July. Extensive advertisin a model change price reduction, an direct mail solicitation of current r frigerator owners are some of the fa tors involved in the success of the tw company promotion. A continued up swing in sales is expected next ye with as many as three new gas re frigerators joining the RCA Whir pool brand on the market.

Texas Eastern Transmission Corporation

Houston, Texas
ORVILLE S. CARPENTER, *President*

Texas Eastern has just put the finishing touches on the largest expansion program in the company's 12-year history. This was a program with two main purposes: (1) to provide for the immediate natural gas needs of the present, and (2) to lay the necessary groundwork that will enable us to properly provide for the needs of the future.

In this program, we have helped pioneer development of the gas turbine as a new advanced type of prime mover for gas compression equipment. We have planned, constructed and readied our pipeline system to best provide for the needs of the present and to be easily expanded for future needs.

We have just completed acquisition of some one trillion cubic feet of natural gas reserves by purchasing the Rayne gas field in Acadia Parish, Louisiana. This represents a major step forward in adding to Texas Eastern's gas reserves that will give even more assurance to our customers that we will always be able to supply them with their needs in natural gas.

We have been participating since 1952 in operation of Oakford Storage, a vast underground storage area for natural gas in southwestern Penn sylvania. There is some 150 billio cubic feet of storage capacity at Oak ford, one-half of which is available t Texas Eastern. Foreseeing presen and future needs of our customers we are now participating in develop ment of the Leidy and Tamarack pool in central Pennsylvania as under ground storage areas for natural ga Soon Texas Eastern will have avai able for its use another 150 billion cu bic feet of natural gas storage capac ty.

This storage will be used at leas

(*Continued on page 54*)

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Vice President and General Manager, Telephone Company

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Vice President, Gas Company

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in part to augment the demands of the company's new winter service program that is now moving into its second season of operation. Under the program Texas Eastern will provide substantial quantities of gas for peaking purposes on extremely cold days of winter. A three-year initial development period has been set up for the plan. At the end of the period the company originally expected to be delivering winter service volumes up to 20 billion cubic feet annually but the wide acceptance of the plan indicates that customers' demand for the additional quantities of gas will soon far exceed that figure.

Winter service, more storage capacity, added reserves and constan expanding facilities for delivering are the highlights of Texas Easte operation for 1958 and more so d ing 1959. Through these and o programs still in the developm st we are constantly striving to pro for the needs of the present and t ready to meet the needs of the fut

Transcontinental Gas Pipe Line Corporation

Houston, Texas
E. CLYDE MCGRAW, *President*

DUE to the tremendous investment required to transport gas over long distances, a high load factor operation, or, in other words, continuous full utilization of pipeline capacity is absolutely essential if the cost of gas at the delivery end is to be reasonable and maintained on a competitive basis. Cost of service can not be kept low by any other means. This becomes increasingly important as a greater proportion of system capacity on peak days is required by relatively low load factor domestic customers for house heating purposes.

Capital charges are the largest single element of pipeline costs. A part of these costs must be recovered from each Mcf transported and necessarily must be spread over the greatest number of Mcf's possible.

An economical balance of base gas load, interruptible sales, and stor enables us to transport gas a the l est possible cost to the consum Without such balance, the cost of to the domestic house heatin custo er would soon become prohibitive most sections of the country

Transco has made storage serv available to its customers and pl to supply additional storage serv as needed.

Washington Gas Light Company

Washington, D. C.
DONALD S. BITTINGER, *President*

THE Metropolitan area of Washington, which includes large sections of the adjoining states of the District of Columbia—Maryland and Virginia—has been served straight natural gas since 1947. Even prior to that time, however, Washington had experienced a rapid growth in gas house-heating customers. Since the conversion to natural gas, this growth has continued until today the company has a high saturation of gas heating customers (over 225,000 meters, or 60 per cent of total meters). This high heating saturation, coupled with the fact that the Nation's Capital and environs has only a negligible amount of what may be classified as industrial load and no interruptible customers, makes it necessary to pursue other avenues for filling in the summer valley created by this seasonal load. It is, therefore, a prime objective of our company to provide large-volume storage by various methods, and to develop a spring, summer and fall off-peak use.

In order to smooth out the demands from our supplier and thereby improve our load factor, we have developed an underground storage project not far from Washington, in Southern Maryland. This aquifer storage formation has been thoroughly explored, tested with inert gas, and found to be feasible. Unfortunately, local political actions have prevented us from proceeding with what would be a workable project, capable of storing many months of gas supply. Consequently, we are limited to meeting our peak demands by using other forms of natural gas storage and propane, plus high Btu oil-gas manufacturing facilities. We are continuing the study of other possibilities for taking care of peak requirements; at this time, do not have complet formulated plans for additional cilities.

Construction expenditures for pl additions of all kinds for 1959 are e mated at over $15,000,000—about per cent higher than 1958.

To promote the use of gas air c ditioning, a new, low air conditioni rate (approved by regulatory autho ties) became effective August 1, 19 Summer cooling, which we hope secure by this promotional rate, sho build up to a sizable load and contri ute to filling-in the summer sales v ley. We believe there is a great f ture for gas in the air conditioni field, and are actively promoting t efficient, economical equipment that available today, as well as supporti to the fullest the research being do on new air conditioning equipment.

Washington Natural Gas Company

Seattle, Washington
CHAS. M. STURKEY, *President*

THE peculiarities of the natural gas supply and utilization in the Pacific Northwest are somewhat different from the other sections of the country in that the Pipeline had an adequate supply of gas to serve many large volume interruptible customers. They designed a special rate which enabled us to add a substantial load immediately after natural gas became available.

During the last two or three years we have had no problem on balancing our winter and summer load because as our winter load grew rapidly we were able to transfer customers from the Pipeline's interruptible rate schedule into our own firm schedule and thereby fill the summer valley. This has enabled us to maintain a good load factor on our firm gas purchases and to actively solicit heating business which annually increases the ma mum day requirement. Because th is still a considerable amount of g being purchased from the Pipeline strictly interruptible purposes on so-called interruptible rate that can transferred into our own firm gas p chases to fill summer valley, we h felt no urgent need to supply additio al peak shaving requiremen s, eith through propane or und rgro

age facilities. This, of course, does mean that we are not interested in methods of balancing load factor, but it does mean that we have not required to come to any definite decisions yet on when and how it should be done.

Like any normal operating company we are continually evaluating our requirements in the years ahead and do foresee an urgent need down the road for ways for some type of winter and summer load balancing but we have not made any commitments in our own thinking as to just how it will be done or where.

The volume of new business we have obtained through new construction plus the additional home business our old system has called for about 10 per cent annual increase in our maximum day requirement for firm business.

All new large volume business being added of a commercial or industrial nature has been on an economic feasibility basis where we have had to make large investments to obtain the new business. We have also used a similar yardstick for residential extensions. However, it has been our general experience that we cannot afford to spend more than about $400 of capital investment for each new residential heating customer to be added to our distribution system. Our use per meter is 3,921 therms per year against the industry average of 2,461.

In 1958 we spent approximately $5 million in our capital budget for all purposes, and in 1959 we anticipate the total expenditures will approximate $7.5 million. This has been a more rapid rate of investment than we had originally contemplated because of the unexpectedly large volume of residential building in our entire service area. It is difficult at this time to state what our construction requirements will be in the future because they are keyed so closely to residential construction but it is reasonable to expect they might remain in the neighborhood of $7 million for the next two or three years.

For the first 81 years of operation the company spent for plant and additions $20,700,000. During the past 4½ years the company has invested $20,800,000 for plant additions, plus $2.5 million on converting to the distribution of natural gas. We feel that natural gas is being accepted in the Pacific Northwest and our growth will continue on a healthy and sound basis.

Western Kentucky Gas Company

Owensboro, Kentucky
G. J. TANKERSLEY, *President*

We are approaching the load factor problem by two avenues. First, we are concentrating on building up the off peak load through aggressive sales of air conditioners, gas heats and other base load appliances, and the development of industrial load for the summer.

Results of the residential base load building efforts were noticed in our June and July statistics. In June 1959, the average residential customer used 3.4 Mcf compared to 3.3 Mcf in June 1958, and in July 1959 the average was 2.5 Mcf against 2.2 Mcf for July 1958. We have been gratified by the reception of gas air conditioners by our employees and by our customers and we intend to add additional sales personnel to our air conditioning department this winter. Incidentally, in a closely controlled survey, approximately 50 per cent of the air conditioning prospects were turned in by employees and 36 per cent of these prospects were sold units. Practically all of our gas light sales are made through the efforts of our employees.

The other avenue by which we are approaching the load factor problem is by the continued development of underground storage. If present plans materialize we anticipate that we will more than double our underground storage capacity in the next 2 to 2½ years.

Our construction budget averages approximately $1,500,000 a year and we see no great change in this average in the foreseeable future. We think it is necessary to pipe communities with as few as 200 to 300 meter potential in order to combat municipal ownership in our service area.

Wisconsin Power and Light Company

Madison, Wisconsin
CARL J. FORSBERG, *President*

We are looking forward with optimism to the continued expansion of our gas operations in our operating area.

Last year, our total gas sales reached 84,8[illegible],000 cubic feet, 13.1 per cent over the previous year, and revenues increased to $4,764,000, up 12.8 per cent. This represented 10.8 per cent of the company's total operating revenues. Ten years ago, gas accounted for 7.9 per cent of our total revenues. In anticipation of this continued increase in demand, we planned and completed a new 10-inch pipeline from Fond du Lac to Beaver Dam which provides a second source of supply for the latter city and completes a natural gas loop serving the three cities Fond du Lac, Beaver Dam and Waupun. Cost of the new pipeline was approximately $1,000,000.

When sufficient supplies of natural gas are available, this pipeline will permit us to bring service to two additional communities, Mayville and Horicon, with a combined population of 5,674. In anticipation of additional supplies of natural gas in the future, we made application and secured from the Wisconsin Public Service Commission authority to construct natural gas distribution systems in these two communities. Work has been started and is expected to be finished by late fall. The cost of constructing the approximately 11½ miles of distribution facilities in these two cities is estimated at $392,000.

Two pipeline suppliers desire to bring additional gas to our service area. Our customers are asking for more and an additional supply would enable more persons to enjoy the advantages of natural gas heat and would make possible greater use by commercial and industrial concerns. We simplified and reduced our gas rates making them more attractive to large industrial commercial users. We continue to have a well trained engineer who specializes in industrial base load.

Recent proceedings before the Federal Power Commission have left the problem of sufficient additional natural gas in our operating area unsolved. We shall, however, continue our efforts to obtain greater sources of supply, and then to vigorously promote and sell increased use of natural gas, which is our obligation, as a public utility, to our customers.

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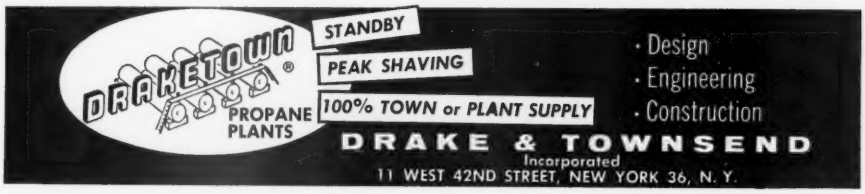

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